MAY 11, 1959

PAPER TRADE JOURNAL

Champion Unveils World's Largest Fine Paper Machine

How to Pinpoint the Source of Coating Variations

U. of Maine Pulp and Paper Foundation Holds Open-House

1

PROGRESSIVE ORGANIZATION

FOR MARKETING

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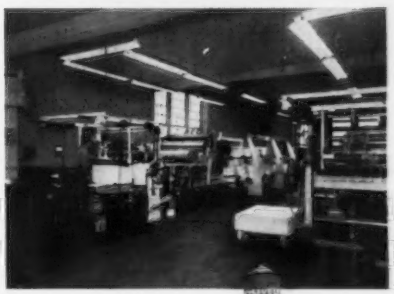
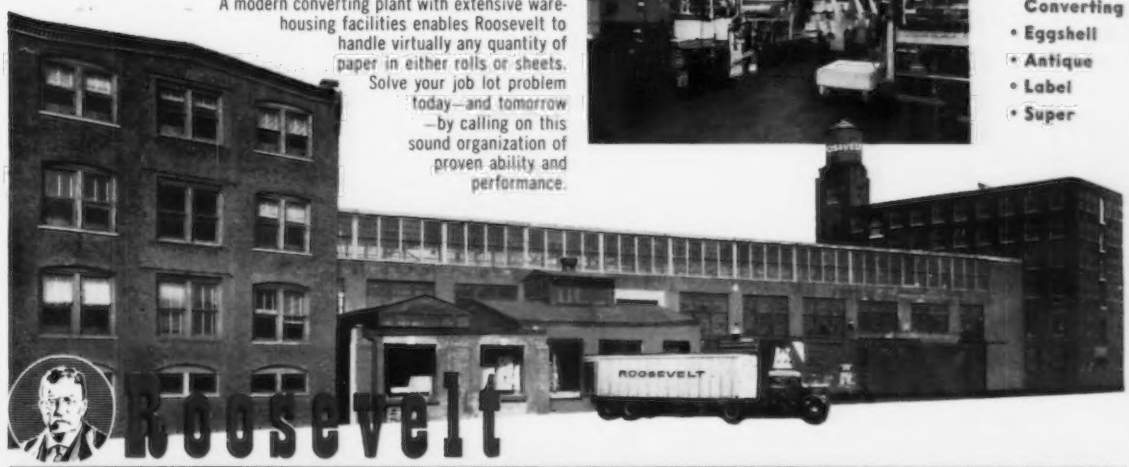
- Bond
- Enamel
- Machine Coated
- Writing
- English Finish
- Mimeo
- Index
- Bristol
- Tag
- Sulphite Converting
- Bleached Sulphate
- Envelope
- Kraft Converting
- Eggshell
- Antique
- Label
- Super



To paper mills looking for a dependable and continuous outlet for sub-standard and side-run tonnage, Roosevelt offers a strong sales organization geared to move all grades of paper to well-developed domestic and export markets. A modern converting plant with extensive warehousing facilities enables Roosevelt to handle virtually any quantity of paper in either rolls or sheets. Solve your job lot problem today—and tomorrow—by calling on this sound organization of proven ability and performance.



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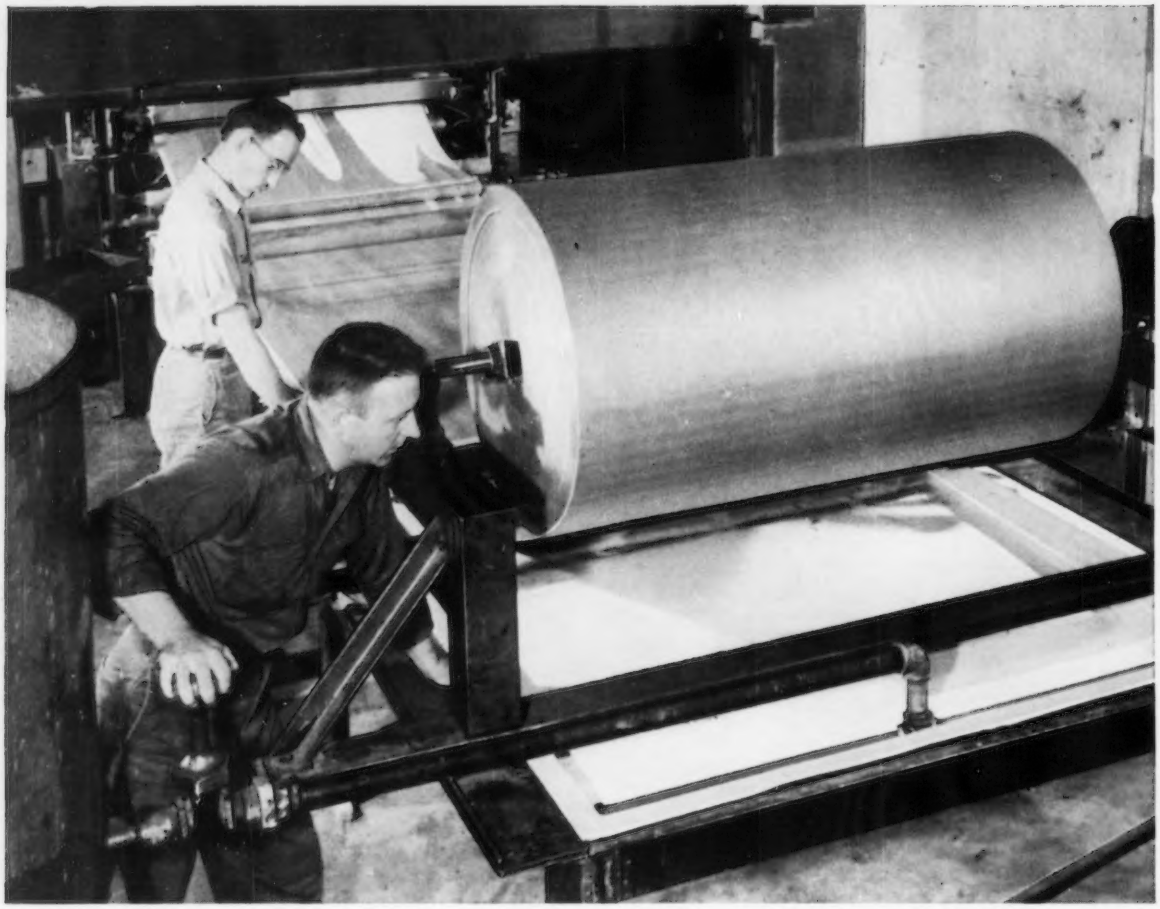

What's the Score on Off-Machine Saturation?

More and more manufacturers are turning to off-machine saturation as a low-cost means of improving various papers. And many of them are finding CHEMIGUM LATEX the ideal saturant.

Pictured above is a case in point. The product involved is sheet gasketing. By saturating the cork paper base with CHEMIGUM LATEX, its manufacturer put an end to shrinkage in storage or in service against water. He also greatly improved its strength, resilience, compressibility and resistance to heat, gasoline and oil. Moreover, he made these improvements with surprising ease and economy.

Off-machine saturation of sheet gasketing takes advantage of just some of the property improvements that can be imparted to a variety of stocks by the addition of CHEMIGUM LATEX. Others include: Better feel and drape, higher internal and edge tear, and added burst strength. Typical applications include: Shoe insoles and midsoles, tapes and coated artificial leather.

If you are interested in improving your situation on off-machine saturation, why not get the full story on CHEMIGUM LATEX. Just write for details, including the latest *Tech Book Bulletins*, to Goodyear, Chemical Division, Akron 16, Ohio.

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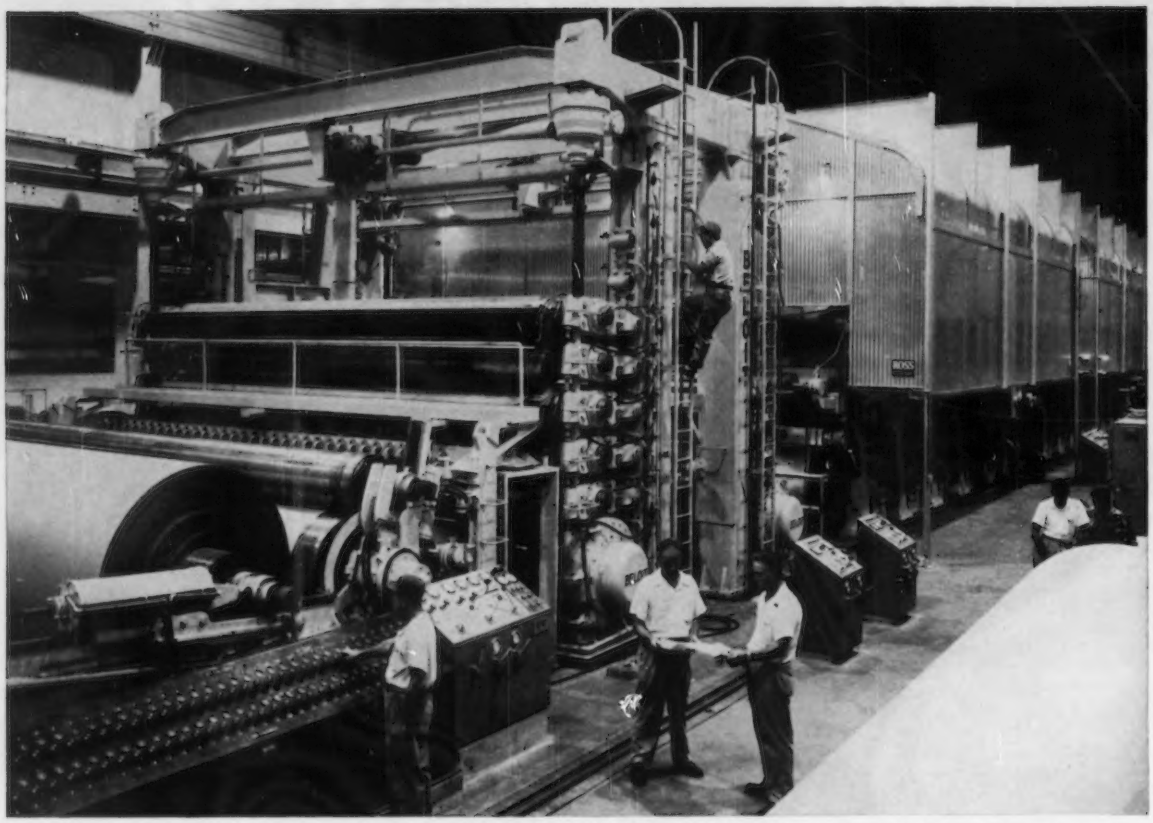

WEST VIRGINIA PULP AND PAPER CO. uses Texaco Paper Machine Oil HD in the circulating system and Meropa Lubricant #2 in the gear sets of this brand new $25,000,000 Beloit.

EVERY USER'S EXPERIENCE PROVES

Texaco lubrication assures longer uninterrupted production

Production lost through unexpected downtime can be a big item on the profit and loss statement. Conversely, every day *added* to the period between scheduled overhauls can add up to significant savings at the end of the year. That's why it's important to choose the best possible lubricants to insure optimum operation—Texaco Paper Machine Oil HD and Texaco Meropa Lubricant.

In the circulating systems, Texaco Paper Machine Oil HD separates readily from water, keeps bearings fully lubricated and protected against corrosion, whether the machine is running or idle. It keeps circulating lines clean by preventing accumulations of carbon, paper dust and sludge—and it withstands bearing temperatures as high as 300° F.

In gear drives, Texaco Meropa Lubricant assures smoother operation, longer life. It resists oxidation and thickening, is non-foaming and noncorrosive—does not separate, and stands up under severe temperature and moisture conditions.

All-around Texaco lubrication is your best protection for vital gears and bearings. A Texaco Lubrication Engineer will be glad to show you the correct products for your needs. Just call the nearest of the more than 2,000 Texaco Distributing Plants in all States or write:
Texaco Inc., 135 East 42nd Street, New York 17, N. Y.

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(PARTS, INVENTORY, PRODUCTION, DOWNTIME, MAINTENANCE)

PAPER TRADE JOURNAL

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REMEMBER THESE DATES

May 25-27, Tenth Coating Conference, Statler Hotel, Boston, Mass.

June 2-4, American Pulp and Paper Mill Superintendent's Ass'n., National Meeting at the Shamrock Hilton Hotel, Houston, Texas.

June 17-20, Summer Meeting, Technical Section, C.P.P.A., Manoir Richelieu, Murray Bay, Que., Canada.

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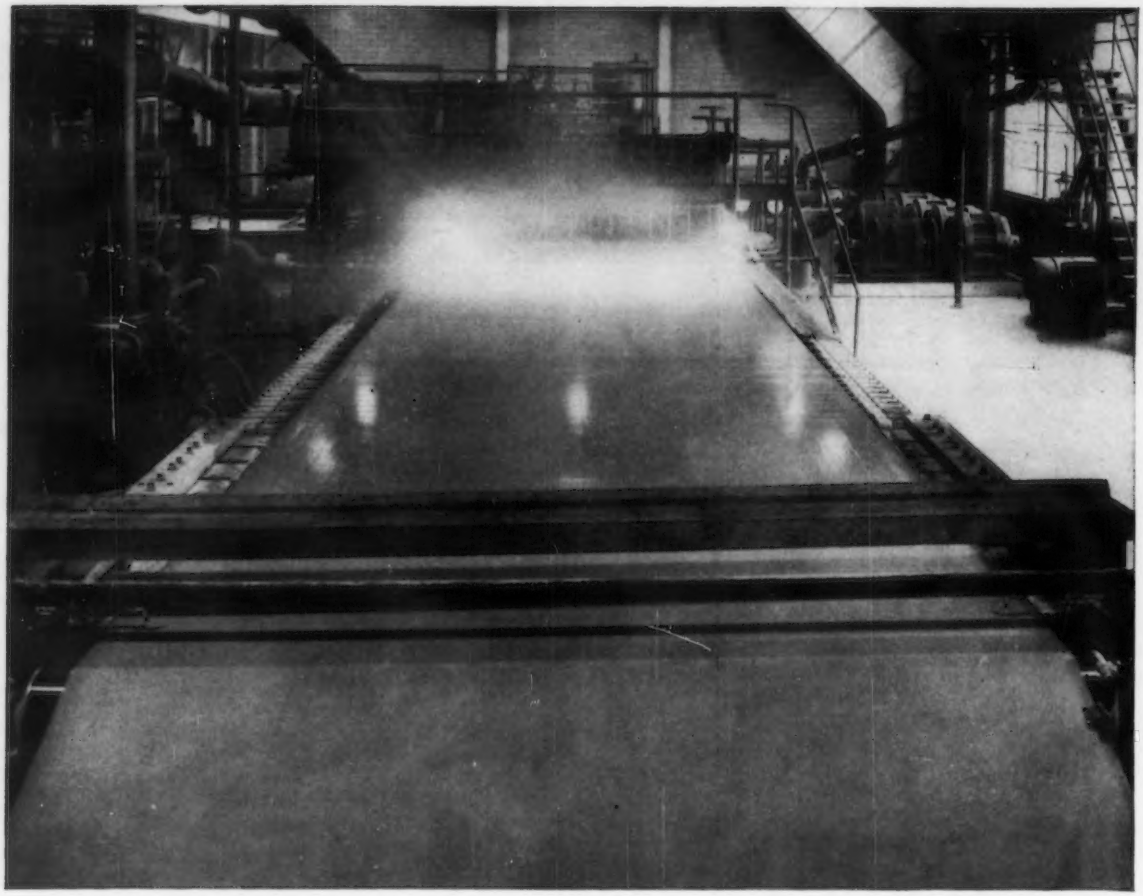

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Today's complex papermaking operations require a wide range of starches—starches specifically designed to do a particular job. You'll find that the complete starch line offered by Corn Products Company includes types for every phase of modern papermaking. These starches are available in so many varieties that *they can literally be tailor-made to suit individual requirements* and production problems of individual plants!

For example, in beater sizing, preferred starches for improved surface qualities plus excellent bursting and tensile strength, include the many varieties of Globe and pre-cooked Amijel. For calendar sizing, you'll find a complete line of Claro and Eagle starches, as well as Globe starches for enzyme conversion. In this operation, Globe and Excello dextrines and thin-boiling Foxhead starches are also used. For general coating, with good viscosity at high solids content, use Claro and new improved Ten-O-Film starches.

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Trends

Paper and Board Mills Set April Records

In April the paper mill operating rate was higher than the board mill rate for the first time since last spring. The paper mills ran at 94-95% of capacity and board mills at 93-94%. This may have resulted in a combined paper and board tonnage for the month surpassing any previous month's output, and this in spite of some loss in production over the Easter week-end.

Waste Paper Decline Stopped

The downward trend in the percentage of paper and board furnish made from waste paper has levelled off, reported P. W. Hoguet, Econometric Institute to the National Ass'n. of Waste Material Dealers. He predicted that in the long term future waste paper consumption will grow about as fast as total paper and board output.

First Quarter Production at an All-Time High

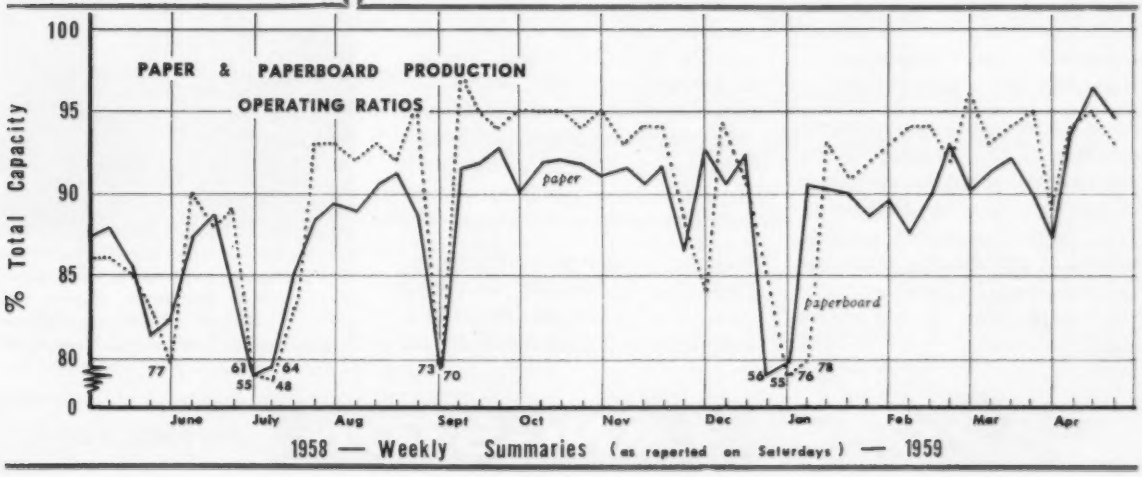
Preliminary estimates by APPA indicate that total paper and paperboard production reached an all-time high of approximately 8,200,000 tons in the first quarter of 1959. Both paper and paperboard established new highs of 3.6 million tons and 3.8 million tons respectively, the remaining tonnage consisting of construction paper and board, both of which were below previously established peaks. Output of all the major grades of paper showed gains of at least 7% except for newsprint which registered a 4% rise.

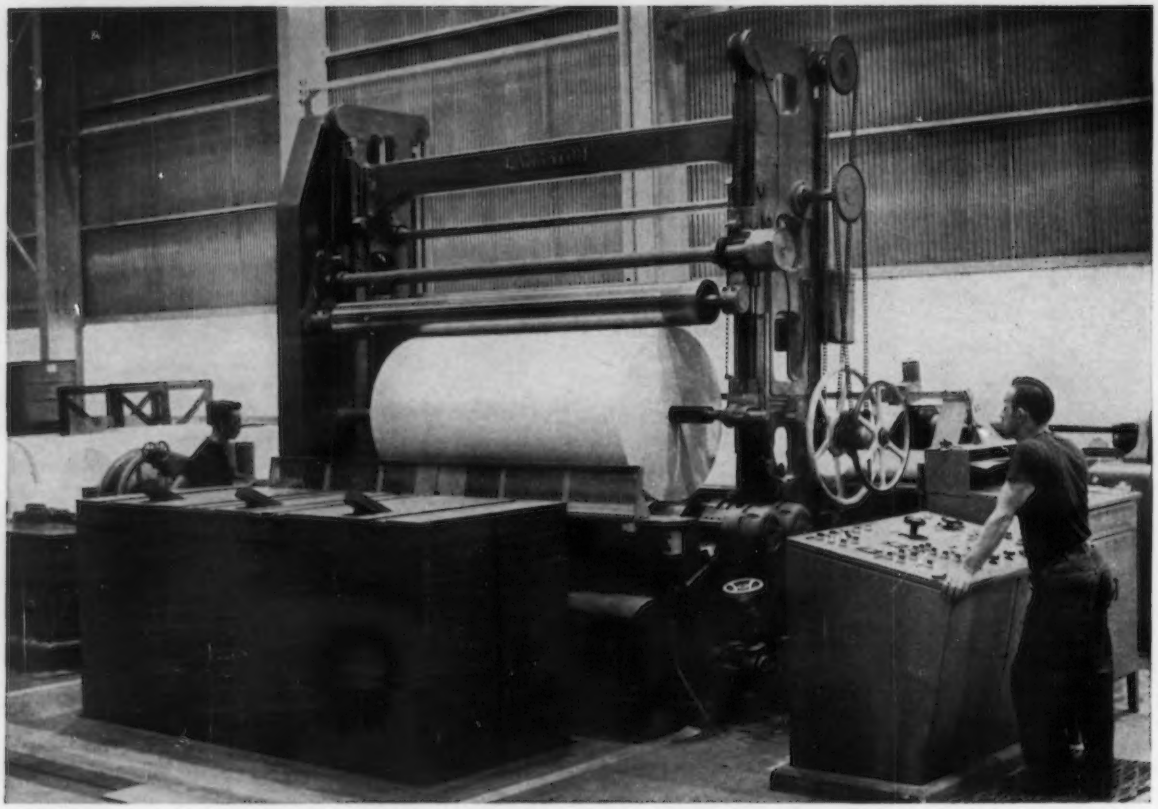
Woodpulp Production Up 10% Over 1958

Woodpulp output in the first quarter of 1959 set a new high and was up 10% above a year ago. Produced for own use was up 11% and market pulp shipments to domestic markets were up 4% for the quarter, while foreign shipments were off 4%.

Fine Weather Turns Waste Paper Prices

Fine spring weather has had its customary effect of improving waste paper collections. This in turn has resulted in some softening in waste paper prices in all major areas.





One of the two 104-in. Langston Slitters and Winders in the Glatfelter mill completing rewind. Roll drop table in foreground is up, ready to receive roll when ejected by the winder, and chocks are in raised position to stop the roll. Note console incorporating all major indicators and controls.

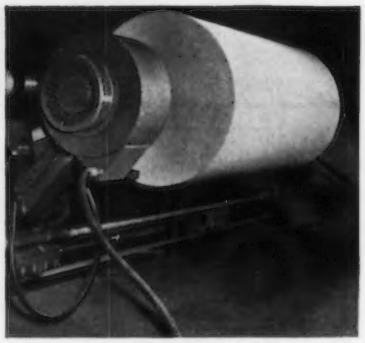
Langston Slitters and Winders turn out tight, even rolls at Glatfelter Mill

Two 104-in. Langston Slitters and Winders have been working in the new mill of P. H. Glatfelter Co., Spring Grove, Pa., for more than a year. They have proved themselves in round the clock production on grades from fine papers to book.

One of the most important features, according to the company, is the constant tension unwind control on the Langston Shaftless Roll Stand, which keeps the tension constant throughout the winding operation. Perfect rolls can be turned out from 9 to 100-lb. stock in roll widths from 7½ to 104 in.

The equipment can be quickly loaded and lined up on the back stand and is designed for easy threadup and gang slitter setting. Hydraulic roll ejectors move the finished rolls quickly from the winding position to the roll drop. Other features include shearcut slitters to eliminate dust; many interlocked controls for extra safety; automatic edge guide control to allow precision trim rewinding of narrow and salvage rolls.

Find out how Langston Slitters and Rewinders can benefit you. Write SAMUEL M. LANGSTON Co., 6th & Jefferson Sts., Camden 4, N.J.



Langston Shaftless Unwind Stand eliminates back-breaking, time-consuming task of hoisting heavy shafts into place. Hydraulically operated arms reach out, pick up the roll, and raise it into running position—a 1-man, pushbutton operation.

LANGSTON Leadership...by design

Illustration Courtesy of BEECH-NUT LIFE SAVERS, INC.

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WE'VE 'OUTGROWN' OUR NAME

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Our policy of selective research and product development, which was accelerated by the military packaging demands of World War II, has made 'NATIONAL' one of the leading producers of vinyl acetate polymers and copolymers in emulsion form for packaging adhesives, coatings, textiles, papermaking, woodworking, architectural laminations and paints.

The prominence of the word 'STARCH' in our new corporate name confirms our substantial and continued interest in the future of starches, starch specialties and adhesives—*which constitute the major portion of our business!*

The addition of the word 'CHEMICAL' in our new corporate name reflects not only our increased interest in chemicals and chemical products . . . but also the important part that chemistry has played in the selective research and development of new starch derivatives.

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NOW, with the DeZurik Precision Electric-Hydraulic Basis Weight Control Valve, it is possible to deliver an *exact* and *constant* amount of stock to the fan pump. Control is completely stable, with excellent sensitivity and repeatability. Positive control is assured by the relative incompressability of the water powering the cylinder. The precision electric position transmitter, mounted on the actuator and connected to the valve plug, indicates the exact valve position. In case of power failure, the valve can be set manually.

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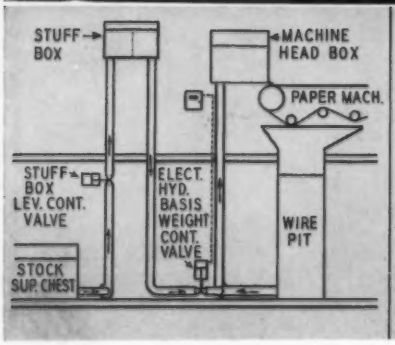
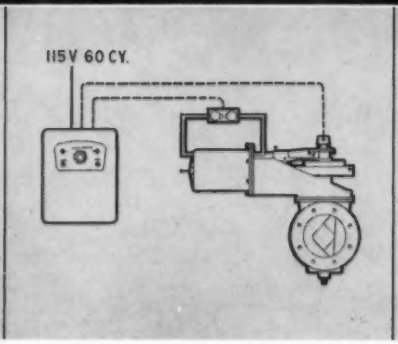
Write Dept. PBW for more information.

APPLICATION



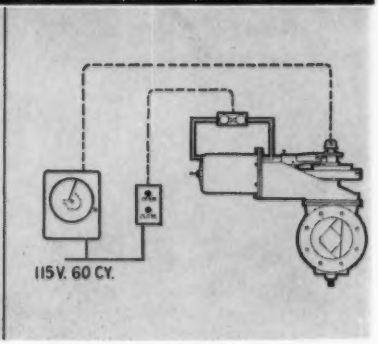
The Electric-Hydraulic Actuator, mounted on a DeZurik Vee Port Throttling Valve, will provide far greater accuracy and repeatability than can be obtained with a stuff gate mounted on the stuff box.

The diamond-shaped orifice of the Vee Port Valve assures constant flow without plugging.



A manual control station can be furnished to provide very accurate control of the valve at an economical price. It is equipped with a vernier ten-turn counter-dial with 1000 divisions.

Since it can be set to ½ a division, this allows 2000 repeatable valve positions.



A push button station can also be used in conjunction with an electronic recording instrument. Because valve position is a function of basis weight, changes in basis weight are therefore recorded on the chart.

The output from a Beta Gage can also be used to control the valve through suitable instruments.

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HUY-5

THE FIRST AND ONLY ALL-PURPOSE NATURAL COLOR CHEMICAL TREATMENT FOR MAKERS OF HIGH BRIGHTNESS BOARD AND MARKET PULP

HUY-5 gives felts outstanding resistance to...

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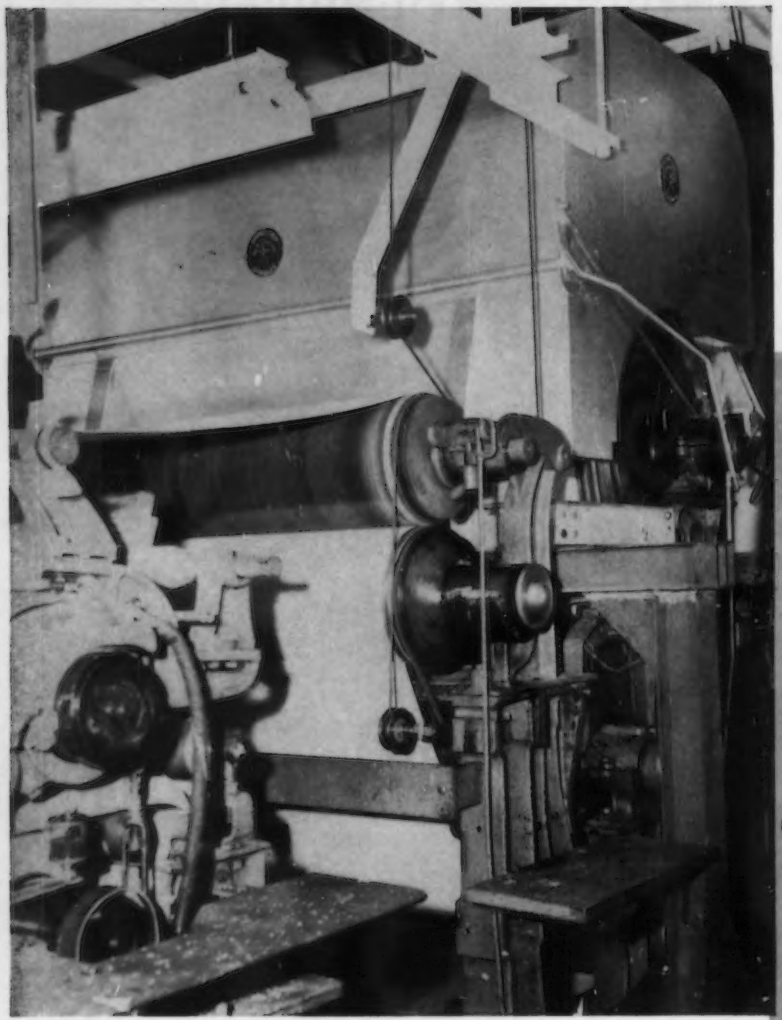

Where Dryer Capacity was the Limiting Factor...

The application of two Gardner Dryers increased paper machine production

40%

This increase was obtained on Gilbert Paper Company's #2 machine when Gardner Dryers were installed at the 1st top and 2nd bottom dryer positions. No other modifications were made to the machine other than the necessary felt-lead change.

If you want fast, convenient, economical expansion of your drying capacity . . . talk with Rice Barton about the Gardner Dryer!

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Paper Machinery Builders Since 1837

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PAPER TRADE JOURNAL
WEEK OF MAY 11, 1959

Anglo-Nfld. Ontario Mill Deal Is Extended

An agreement which could lead to construction of a pulp or a pulp and paper mill in Northwestern Ontario has been extended to May 1, 1962.

The agreement is between the Government of Ontario and Anglo-Newfoundland Development Co., whose newsprint and base metal operations are centered in Newfoundland.

Under its original terms, the company was given timber rights around Sioux Lookout, Ont., on condition it build a mill with initial capacity to use at least 150,000 cords of wood annually. Work was to start by May 1 this year. However, the company has delayed development because of market conditions.

The extension to 1962 has been granted by the government on condition the company spends $150,000 for roadbuilding into timberlands covered by its licence.

The company has on deposit with the government $250,000 in Government of Canada bonds as security for fulfilment of development requirements.

Continental Can Acquiring Fort Wayne

Continental Can has entered into an agreement to acquire all the assets and business of Fort Wayne Corrugated in exchange for 496,000 shares of Continental Can common stock and the assumption by Continental Can of the liabilities of Fort Wayne Corrugated.

Upon completion of the transaction, the liquidation of Fort wayne Corrugated will take place and the common stock of Continental Can will be distributed on the basis of .765654 share of Continental Can for each share of Fort Wayne Corrugated.

The transaction is subject to the approval of the stockholders of Fort Wayne Corrugated at the company's annual meeting which is scheduled to be held on May 27, 1959.

Fort Wayne Corrugated manufactures corrugated shipping boxes and corrugated paper products in plants located in Chicago, Ill., Hartford City, Ind., Rochester, N. Y., and Pittsburgh, Pa. Its principal asset is 40 per cent of the outstanding stock of Southern Paperboard Corp., the other 60 per cent of which is owned by Continental Can. Southern Paperboard owns and operates a paper mill with an annual capacity in excess of 200,000 tons at Port Wentworth, Ga., and over 400,000 acres of woodlands in Georgia, Florida and South Carolina. Its full production of kraft containerboard now goes to its two shareholders.

In view of the fact that the majority stock interest in Southern Paperboard is owned by Continental Can which is also responsible for management, the Department of Justice has stipulated that it will not seek to enjoin the transaction under the antitrust laws nor will the acquisition be used to prejudice the position of Continental Can under pending litigation.

According to an understanding with the Department of Justice, Continental Can has undertaken to dispose of at least two of Fort Wayne Corrugated's four box plants. In accordance with this undertaking, Continental Can is now negotiating the sale of three of the four plants.

CIP Acquires Mill and Merchants

Canadian International Paper Co. has announced the acquisition of all outstanding shares of Anglo-American Paper Co. of Toronto, Ont. The major shareholder in this company has been Canadian Corporate Management Co.

Principal subsidiaries of Anglo-American include Garden City Paper Mills Co. which operates a paper mill at Merritton, Ont.; Mid-West Paper Ltd., Winnipeg, large wholesaler of paper to prairie printing firms; Vancouver Pacific Paper Co., Vancouver, an important distributor of kraft papers; and Victoria Paper Co. of Toronto, Victoria is a major supplier of bags and wrapping paper to the grocery trade in its area.

F. S. Leinbach

F. S. Leinbach Elected President of Riegel Paper

Riegel Paper Corp. has announced the election of Frederick S. Leinbach as president. John L. Riegel, who has been chairman of the board and president will continue as chairman of the company.

Mr. Leinbach has been executive vice president of the corporation since 1957. He joined Riegel in 1934, starting as a chemical engineer for product development in the company's mill at Milford, N. J. He is a member of the board of governors of APPA, currently serving as chairman of the Chemical Additives Committee, and as chairman of the Glassine & Greaseproof Assn. He has served as president of the Packaging Institute and, during World War II, was assistant director of the War Production Board's Container Division.

Knowlton Makes Paper Incorporating Glass Scrim

Knowlton Brothers have announced pilot machine production of a saturating base paper with an integral

glass scrim or screen incorporated at the time of manufacture. The additional strength imparted by the glass scrim makes this paper an excellent choice for electronic and other laminates where high shock resistance and rigidity are important.

The paper used in this new material is said to be extremely uniform in weight and thickness and its high alpha cellulose content gives it an excellent absorbency rating — 15/16 inches to 1¼ inches water rise in one minute in Klemm capillarity test. Most papers incorporating glass are made up as separate sheets, and the glass is then laminated between them. The new Knowlton Brothers material is made in one operation; the glass scrim is built into the center of the single sheet of paper at the time of manufacture. This eliminates the possibility of changes in the paper's characteristics that occur when the glass is laminated between two sheets. It also makes possible the precision tolerance control so essential for applications such as printed circuits and various types of insulation where laminates of the material are impregnated with phenolic resin.

Knowlton Brothers engineers advise that the technique of building the scrim into the paper can be applied to any type of paper that is .010-inch or thicker. Papers of this type are ideally suited for applications where a substantially increased lengthwise tensile is required.

AN EVENT OF GREAT SIGNIFICANCE to the citizens of the State of Wisconsin recently took place when Stanton W. Mead, president of Consolidated Water Power & Paper Co., presented a 20,000-acre tract of land as a gift to the state to be used for all time for wildlife conservation purposes. Pictured from left to right are: L. P. Voigt, director, Wisconsin Conservation Dept.; Russell D. Stouffer, secretary, Wisconsin Conservation Commission; Charles F. Smith, Wisconsin Conservation Commission; Arthur R. MacArthur, chairman, Wisconsin Conservation Commission, presenting a certificate to Stanton W. Mead; Mr. Mead; Leonard J. Seyberth, Wisconsin Conservation Commission; Dr. A. W. Schorger, Wisconsin Conservation Commission; Guido R. Rahr, Wisconsin Conservation Commission.

Mead to Install New Boiler at Sylva, N. C.

Since the first of the year, work crews have been clearing the area adjacent to The Mead Corp.'s Sylva, N. C., division in preparation for the erection of a new steam plant for the paperboard mill.

Construction will get under way immediately and the new installation which will cost more than $1¼ million is expected to be completed about January 1, 1960. General contractor for the project is the Jamison Co. of Atlanta, Ga.

Babcox and Wilcox has fabricated and will install the new boiler designed to replace six older boilers which now supply the mill's steam requirements. However, one of the present boilers will be converted to burn bark from the wood used at Sylva.

The installation will be along the lines now quite popular, particularly in Southern utility plants, with the boiler proper installed outdoors. The firing aisle and machinery areas will be housed in a steel framed building with protected metal siding.

The new boiler will generate 200,000 lbs. per hr. of steam at 600 p.s.i. and 740°F. Provisions have been made so that the boiler can also be operated at 850 p.s.i. should it ever become desirable to generate electric power.

The boiler will be equipped with mechanical separators to control fly ash and a complete automatic combustion control system. Existing coal and ash handling facilities will be extended with Link-Belt coal conveyor, Stock coal scales, and United pneumatic ash handling.

Paper and Board Production

According to the American Paper and Pulp Ass'n., the ratio of the United States production to mill capacity for the week ending April 25, 1959, was 94.7 per cent compared with 95.6 per cent revised for the preceding week. The ratio was 88.1 per cent for the corresponding week a year ago.

The paperboard production ratio for the week ending April 25, 1959, was 93 per cent compared with 95 per cent for the preceding week and 81 per cent for the corresponding week a year ago.

(Detailed statistics on page 72.)

Canadian First Quarter Production Up Over 1958

Canadian woodpulp production in March was 852,402 tons, off from 863,426 tons last year. In the first quarter, however, production was ahead at 2,455,148 tons as compared with 2,383,878 tons in the first three months of 1958.

March exports were 188,771 tons, up from 184,887 tons last year. To the end of March, shipments abroad totalled 561,850 tons, substantially ahead of the year ago figure of 471,662 tons.

Domestic consumption in the first quarter was 1,873,575 tons as against 1,865,097 tons in 1958.

Canadian paperboard production in March was 71,774 tons, up from 69,638 tons in March last year. Output in the first quarter totalled 214,284 tons, well ahead of the year ago figure of 192,297 tons.

Domestic consumption in March was 66,644 tons, substantially ahead of the 59,746 tons shipped to Canadian consumers in the same month last year. Domestic consumption was also ahead in the first quarter at

192,784 tons as compared with 169,748 tons in 1958.

Paperboard exports totalled 16,461 tons in the first three months as against 16,518 tons last year. Exports for the month were 4,756 tons, down from 5,891 tons in March, 1958.

Canadian wrapping paper production and shipments gained substantially in the first quarter.

Output to the end of March was 76,266 tons, well ahead of the year ago figure of 66,384 tons. Domestic consumption for the period was also ahead at 66,416 tons as against 60,406 tons last year.

Exports in the first quarter were 6,964 tons as compared with 5,373 tons in the same period in 1958.

Canadian fine paper production and shipments were ahead in March and in the first quarter as compared with a year ago.

Output for the month was 23,276 tons, up 6.4 per cent from 21,885 tons in 1958. In the first quarter, production was 68,551 tons, 8.9 per cent greater than the year ago figure of 62,972 tons.

Total shipments to the end of March were 67,394 tons, a gain of 5 per cent from the 64,161 tons shipped in the same period last year. Included in this year's total were exports of 3,860 tons, off slightly from the 3,891 tons shipped abroad in the first three months of last year.

Fine paper shipments for the month were 23,363 tons, including exports of 1,427 tons. In March last year shipments totalled 22,167 tons with 1,472 tons going abroad.

Coated paper output in March was 2,843 tons as compared with 2,368 tons a year ago. Shipments for the month were 2,808 tons this year and 2,365 tons in 1958. For the first three months, coated paper production totalled 8,029 tons and shipments 7,803 tons. In 1958, production was 7,142 tons and shipments were 7,241 tons.

St. Regis Names Jones Kraft Div. Gen. Sales Mgr.

St. Regis Paper Co. announces the appointment of E. H. Jones, Jr., as general sales manager of its Kraft Division. In addition to this new position, Mr. Jones will continue in his present capacity of administrative assistant to the vice president in charge of the Kraft Division.

After being graduated from Yale University in 1939, Mr. Jones attended the Harvard Graduate School of Business and received his degree in 1941. He joined St. Regis in 1946 in the accounting department and became supervisor of costs. In 1954 he was appointed administrative assistant to the vice president in charge of the Kraft Division.

Foley Will Retire As Marathon Manager

Norman H. Foley, manager of the Menominee, Mich., plant of Marathon division of American Can Co. since 1951 will retire June 30 after 45 years with Marathon. Mr. Foley will be succeeded by Larry S. Sabatke, manager of Marathon's plant at Ashland, Wis.

Kimberly-Clark Announces Research Changes

W. H. Swanson, vice president of research and development for Kimberly-Clark Corp., Neenah, Wis., will assume a new area of general management responsibility as vice president in charge of corporate product planning and the commercial development of new products.

James J. Shipman has been appointed director of research. He has been associated with corporate research and development since 1945.

Two Students Receive the Boyce Award

PRESENTING the Fred C. Boyce Student Award to E. Reid Hinson, Jr., of Charlotte, junior in pulp and paper technology at North Carolina State College, on behalf of the American Pulp and Paper Mill Superintendents Ass'n., is Prof. C. E. Libby, (fourth from left), head of the pulp and paper curriculum at N. C. State College. Mr. Hinson entered N. C. State College in September, 1958, and worked for the Champion Paper and Fibre Co., Houston, Tex., the summer of 1957 and 1958.

EIGHTH ANNUAL Fred C. Boyce Student Award for $200 is presented to George R. Adams of Fulton, N. Y. (second from left), pulp and paper technology senior, State University College of Forestry at Syracuse University, by Harry E. Weston, secretary-treasurer, American Pulp and Paper Mill Superintendents Ass'n. Others participating were: Prof. F. W. O'Neil, chairman, pulp and paper technology department; Dr. E. C. Jahn, associate dean, physical sciences and research; Prof. R. F. Grossman, dean of students; all of the College of Forestry. The Award is given annually in honor of Fred C. Boyce, first active APPMSA president.

PAPER PEOPLE

N. S. Mead

M. A. Silegy

Mead Corp. Elects Two New Directors

Nelson S. Mead and W. Walker Lewis, Jr., both of Dayton, Ohio, were elected directors at the annual shareholders meeting of The Mead Corp., replacing Charles F. Kettering, deceased, and Austin P. Story, retired.

Mr. Lewis, a native of Lewisburg, Tenn., is a graduate of Dartmouth College and Harvard Law School. He is one of the senior partners of the Dayton law firm of Smith & Schnacke, with which he became associated in 1939, and is actively engaged in the practice of law in Dayton. Mr. Lewis, who has been secretary of the corporation since 1952, was elected general counsel in 1958.

Mr. Mead has been assistant to the president of the corporation since 1954. In addition, he is president and director of Mead Pulp Sales, Inc., and a director of Mead Papers, Inc., Hurlbut Paper Co., Chillicothe Paper Co., and Mead Investment Co.

Bunde Joins Allied Paper

L. F. Bunde has joined the Central Engineering Department of the Allied Paper Corp. as staff engineer. Mr. Bunde is a graduate mechanical and electrical engineer and has been in the pulp, paper and board industry since 1925. Before he came to Allied, he acted as a consulting engineer.

Mr. Bunde will be located in the Central Engineering offices at the Bryant mill in Kalamazoo, Mich.

Monadnock Names Silegy Gen. Sales Manager

Mark A. Silegy of Stamford, Conn., has been appointed general sales manager of the Monadnock Paper Mills, Inc., Bennington, N. H., according to Gilbert Verney, president.

Mr. Silegy has spent his entire business life in the graphic arts and paper business, and is well known by the merchants, converters, printers and lithographers in the area of Monadnock operations. He is a member of the Salesmen's Association of the Paper Industry, the New York Division of the National Sales Executives Association, and the Boston Paper Trade Association.

Gorham Manufacturing Co. Elects Two New Directors

Harry C. Dutton and George P. Clayson, president and vice president respectively of Eaton Paper Corp., Pittsfield, Mass., were elected directors of the Gorham Manufacturing Co., Providence, R. I., at a meeting of the Gorham board of directors on April 24.

Mr. Dutton, a native of Sherman, N. Y., and a graduate of New York University, has been president and a director of the Eaton Paper Corp. since 1949. For the previous 11 years he served as president and general manager of the White and Wyckoff Manufacturing Co., Holyoke, Mass., following broad experience in the financial and public accounting fields.

Mr. Clayson, an alumnus of Yale College, began his business career with Agfa Ansco, manufacturers of photographic equipment. He joined Eaton Paper Corp. in 1934 and was elected president in 1942. Following expansion of the company's operations, he withdraw from the presidency in 1949 to become vice president in charge of sales of Eaton and its affiliated divisions.

Earlier this month Gorham Manufacturing Co. announced a plan to purchase Eaton Paper.

Burdsall and Newman Promoted At Crystal

John E. Burdsall and Lowell W. Newman have been promoted to new positions in the manufacturing division of the Crystal Tissue Co.

Mr. Burdsall has been promoted from general superintendent to vice president in charge of manufacturing. H. H. Harrison, who has served for many years in this capacity, will continue as a vice president and will act as consultant to management, handling special assignments.

Mr. Newman has been promoted from superintendent of power to plant engineer.

Mr. Burdsall will be responsible for all mill operations and Mr. Newman will head the new engineering department of the company and will continue to be in charge of Crystal's power department.

W. C. Birdsey

Fibreboard Names Birdsey Division General Mgr.

Appointment of William C. Birdsey as general manager, Paperboard Division, of Fibreboard Paper Products Corp., has been announced.

Mr. Birdsey, a graduate of California Institute of Technology, joined Fibreboard in 1958 following a lengthy career in plant and manufacturing management with The Flintkote Co. His most recent position with Flintkote was general manufacturing manager for the com-

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BIRD MACHINE'S 50th YEAR OF SERVICE TO INDUSTRY

pany's Pioneer Paper Products Division.

Mr. Birdsey will headquarter at the company's executive offices at 475 Brannan Street, San Francisco.

Standard Ups Vasiluth

Chris J. Vasiluth has been promoted to district sales manager for the Mid-Atlantic sales territory of Eastern Fine Paper and Pulp Division, Standard Packaging Corp.

Mr. Vasiluth joined the Eastern organization early this year. Previously, he had spent a year as New York manager for Monadnock and, prior to that, had been with International Paper Co. for more than 20 years.

Zellerbach Resigns Active Management Role

Harold L. Zellerbach, an ex-president and ex-executive vice president of Crown Zellerbach Corp. and active in the operations of that firm for the past 41 years, has retired from an active management role in the big Pacific Coast company, it was announced.

He will continue as chairman of the executive committee, a post to which he was reelected by the board of directors Thursday at San Francisco. He will also continue as acting board chairman during the absence of J. D. Zellerbach as U.S. ambassador to Italy.

Mr. Zellerbach's first association with Crown Zellerbach began in 1917 when he joined the Zellerbach Paper Co. as personnel manager. He was successively export manager, San Francisco division manager, assistant to the president, president and executive vice president. He held the latter post 18 years and relinquished it in 1956 to become chairman of the executive committee.

Standard Promotes Two To New Posts

Stephen G. Stapley and Richard W. Maley have been promoted to the newly created positions of plant manager and assistant plant manager, respectively, of the Chemical Fine Paper & Board Division, Standard Packaging Corp. of Holyoke.

Mr. Stapley formerly was production manager of the Crocker-McElwain mill while Mr. Maley was formerly production manager of the No. 2 Chemical mill and Board Mill superintendent.

Wykstra Succeeds Towne As Allied Controller

Promotion of Charles Wykstra to the position of controller for the Allied Paper Corp. was announced by Ward D. Harrison, president.

Mr. Wykstra held the position of mill controller, supervising the overall cost accounting functions of the mills. Previously he had served in the capacity of cost accounting supervisor and cost accountant.

An employee of Allied since 1951, the new controller replaces Garner Towne who has resigned to accept employment with an Eastern firm.

Sidney Myers

Morgan Paper Names Myers Sales Mgr.

Morgan Paper Co., Inc., Lititz, Pa., announced the appointment of Sidney Myers, to the position of sales manager.

Mr. Myers, who has 25 years of experience in the paper industry, resigned from a similar position at A.P.W. Products, Inc.

Riegel Paper Realigns Indust. Relations Staff

The following organizational changes have been announced for Riegel Paper Corp.

W. M. McFeely, vice president, industrial relations, for both Riegel Textile Corp. and Riegel Paper Corp., was appointed vice president, organization, for both corporations. He will continue to report to John L. Riegel, board chairman.

G. W. Clark was appointed director of industrial relations for Riegel Paper, reporting to F. S. Leinbach, the new Riegel president. Mr. Clark was formerly assistant director of industrial relations for Riegel Textile as well as Riegel Paper.

R. A. Warner, formerly coordinator, industrial relations for both corporations, was appointed supervisor industrial relations of Riegel Paper reporting to Mr. Clark.

P. V. Kolonia, formerly coordinator, placement, for both corporations, was appointed supervisor, placement, for both, reporting to Mr. McFeely.

J. T. Allmon was appointed supervisor, management development, reporting to Mr. McFeely. Mr. Allmon was formerly personnel director, Glove Division, Riegel Textile.

Scott Announces Three Foreign Appointments

Scott Paper Co., Chester, Pa., has announced the appointment of three men to new responsibilities relative to marketing operations carried out by its foreign affiliates.

Peter P. Miller, Jr., has been named marketing coordinator, Bowater-Scott Corp., Ltd., Scott's English affiliate. Residing in England, Mr. Miller will serve as consultant and advisor to the English company as well as liaison between Scott Paper Co. and its English and Belgian affiliates.

John Jayet has been named marketing coordinator for Bowater-Scott Continental S.A., Scott's newest foreign affiliate, and will reside in Brussels, Belgium. Bowater-Scott Corp., Ltd., was formed by Scott in partnership with Bowater Paper Corp., Ltd., English paper manufacturers. Bowater-Scott Continental S.A., is owned in equal shares by Papeteries de Belgique, S.A., leading Belgian papermakers, and Bowater-Scott Corporation Ltd.

William R. White has been named international marketing coordinator with responsibility for programs relative to Scott affiliates in Canada and Mexico.

Top Executive Changes at Bathurst Announced

Bathurst Power & Paper Co. announces the election of R. L. Weldon to the newly created office of chairman of the board and the retirement of Mr. Weldon as president of the company after 23 years of service in that capacity.

R. A. Irwin has been elected to succeed Mr. Weldon as president of the company. Mr. Irwin joined the company in 1957 as a vice president. in 1958 he was elected to the board of directors. He has been active in the paper industry for many years and was president of Eddy Paper Co. and Somerville, Ltd., prior to his association with Bathurst.

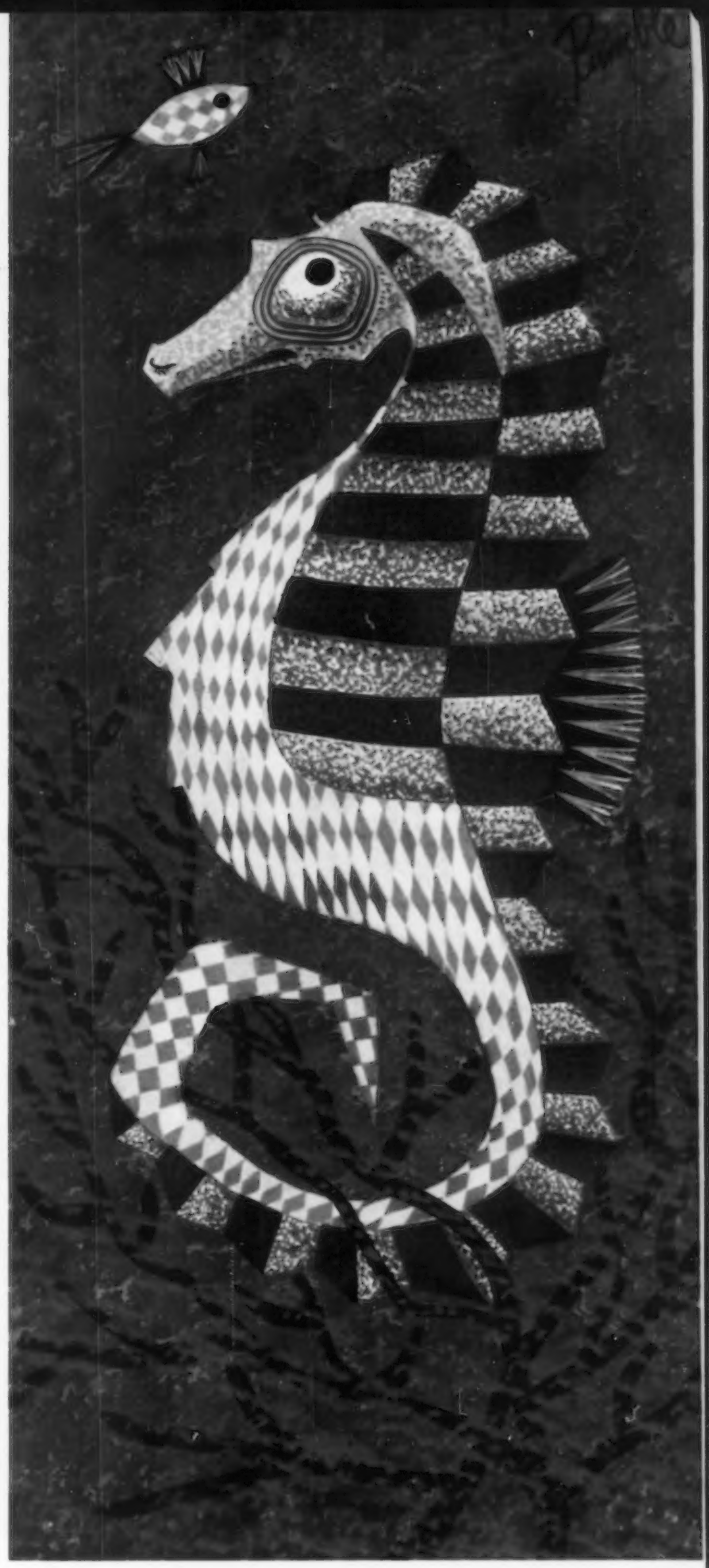
For brighter whites with LESS brightener... LEUCOPHOR BS LIQUID

Whatever your problem, SANDOZ can help! Particularly when it comes to gaining a better degree of brightness from a minimum amount of brightener. Take the example set by one of the nation's largest pulp and paper manufacturers who has adopted Leucophor BS Liquid for optical brightening in many of its paper grades.

SANDOZ brighteners are now used in casein coating, as well as in all bleached paper furnishes. SANDOZ fluorescent whites come in several strengths and tints, as well as with pink, blue, or even a green fluorescence. Consult SANDOZ as to which is best for your specific requirement. And don't let prices mislead you—some SANDOZ brighteners offer maximum brightness pound for pound, while others are formulated for easy application by unskilled labor.

In any event, SANDOZ can help you. Just call or write: SANDOZ, INC., 61-63 Van Dam Street, New York 13, N. Y. ALgonquin 5-1700.

District Offices: Charlotte, Cincinnati, Fair Lawn, N. J., Hudson, Mass., Los Angeles, Philadelphia.

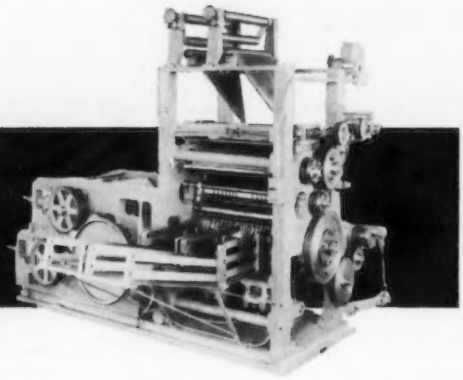


SANDOZ

THINKS AHEAD WITH PAPER

SANDOZ

Creative engineering and development of converting machinery



New Napkin Folder with embosser runs open-center napkins! Newest Napkin Folder from PCMCo. is the Model 2066 for running edge-embossed facial type napkins. Vacuum folding produces quarter fold or the popular double transverse eightfold. A name embosser and constant tension, belt-driven unwind are standard on the 2066. In the next converting machinery you buy, get the profitable benefits of *creative* engineering. Contact Paper Converting in the development stage to be sure you have the very latest in converting ideas.

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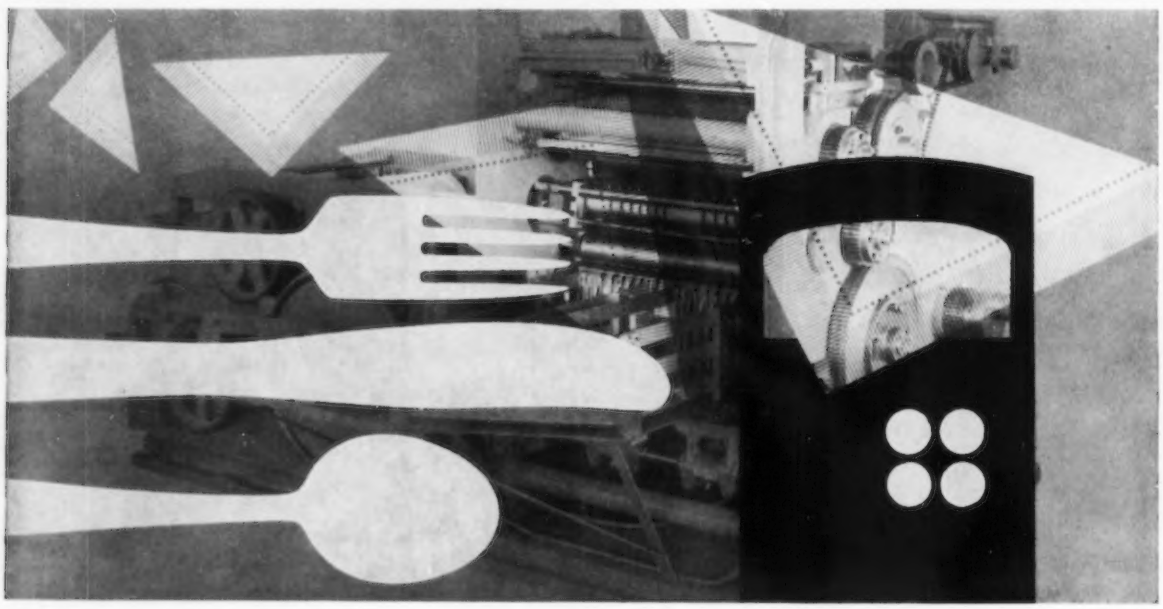
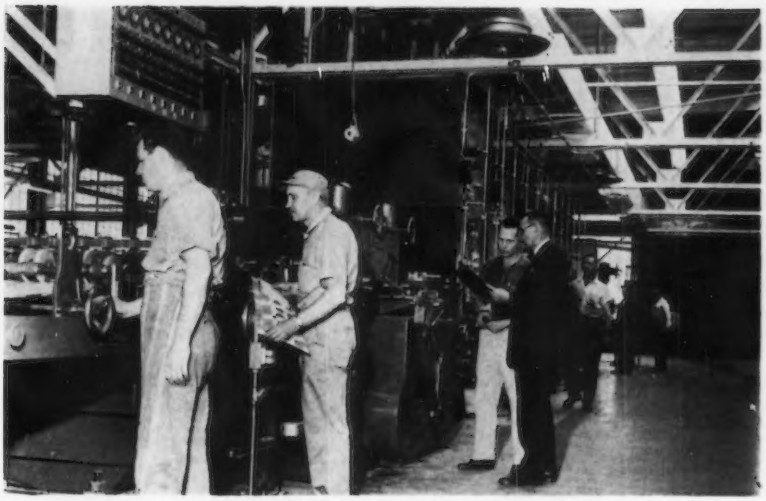


THINKS AHEAD WITH PAPER SANDOZ

PJT NEWS OF CONVERTERS



B. H. Kemmerling, center, superintendent of Consolidated Paper's Plant No. 9 checks with press foreman on initial run of new six-color rotogravure press.

Consolidated Installs Six Color Press

The Consolidated Paper Co., Monroe, Mich., has placed in operation a new six-color rotogravure press at a cost of approximately $500,000, C. H. R. Johnson, president, announced. This new web-fed installation, built by the Champlain Co., of Roseland, N. J., is capable of handling maximum web widths of 45 inches. It will print, cut, crease and deliver waste free cartons up to 35 points thick at an operating speed of 13,800 impressions an hour.

The six-color units consist of five rotogravure and one flexogravure. One of the gravure color units is equipped so that it may print on either the face or back of the web.

An automatic butt splicer will, in one revolution of the cylinders, cut the trailing edge of the expiring web and the leading edge of the new web, butt the edges together, reject the waste, and apply pressure-sensitive tape to both sides of the web, affording uninterrupted press operation during roll changes. The turnover roll stand is designed to lift and place into position a roll of paperboard up to 72 inches in diameter.

The reciprocating carton cutter-creaser is of a new design, with a maximum load capacity of 700,000 pounds. To support this weight, Consolidated constructed a special reinforced concrete platform under this cutting head.

To accommodate this new press, a special room occupying 12,000 square feet was built in Consolidated's South Side Plant No. 9, which is humidified, pressurized and temperature controlled to keep dust and dirt out of the air and the board at uniform humidity. Although electronically controlled, five men are required at all times to operate the 20 feet high, 65-ton piece of equipment.

Autographic Announces Election of Officers

Autographic Business Forms, Inc., printer of business form stationery of South Hackensack, N. J., announces the election of the following company officers: Charles B. Howard, chairman of the board; Robert W. Shoup, president; Charles J. Timm, vice president and treasurer. Other members of the board of directors are William C. Ryan, secretary; Earnest R. McKeag, general sales manager; Herman E. Muller and Benjamin C. Howard.

The firm recently commemorated its 75th anniversary. In addition to form printing, company products include Autographic registers and various form handling devices. Sales offices are located in principal cities throughout the eastern section of the United States.

Raymond Bag Names Davis Project Engineer

Craig E. Davis, Fairfield, has been appointed project engineer for Raymond Bag Corp., J. R. Clements, president, announced.

Mr. Davis comes to Raymond from Ketco, Inc., where he has been project manager since June, 1957. Previously he was assistant chief engineer of the Black-Clawson Co., Hamilton.

A graduate of Purdue University, he holds a degree in electrical engineering. He is a member of the American Institute of Electrical Engineers and the Hamilton Junior Chamber of Commerce.

Gibbons Joins Olin Mathieson

O. R. Gibbons has been appointed product manager, cartons, for the Packaging Division, Olin Mathieson Chemical Corp.

Mr. Gibbons will direct all carton activities including production and sales. He will be located at Forest Products headquarters in West Monroe, La.

Mr. Gibbons, formerly the eastern

O. R. Gibbons

regional sales manager for cartons of Continental Can Co., has been in the carton marketing and manufacture industry for 15 years.

Olin Mathieson recently announced the opening of its new carton plant in West Monroe. This plant is equipped with the newest carton manufacturing equipment including five and six-color offset and rotogravure presses and can produce a wide variety of carton types.

A complete line of proved and accepted

DORR-OLIVER

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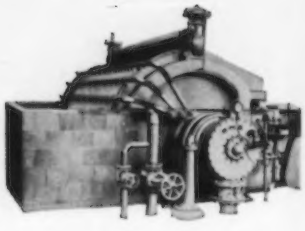
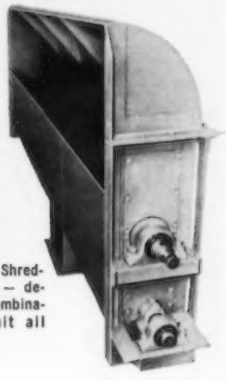
WASHERS AND ACCESSORIES



Oliver Vacuum Bleach Washer — now available in advanced designs and materials.

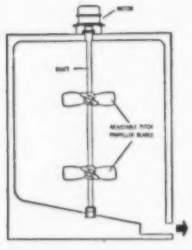
Dorr-Oliver Escoe and Nycoe Nozzles — minimize channeling and foam in the sheet.



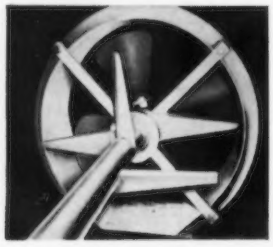
Dorr-Oliver Shredder-Conveyor — designs and combinations to suit all installations.

AGITATORS

Dorr-Oliver manufactures a variety of agitators specifically engineered to meet the specialized requirements of every operation in the bleaching system.



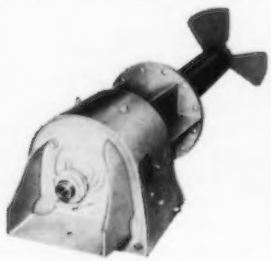
Dorr-Oliver Blending Chest Agitators — designed for proper agitation with minimum power requirements.



Dorr-Oliver Horizontal Chest Agitators — a complete line designed for tub or mid-feather type chests.

Dorr-Oliver Bleach Tower Agitators — tangentially mounted with either fixed or fully adjustable blades.

Dorr-Oliver Tower Agitators — for high density storage towers. Adjustable propellers.

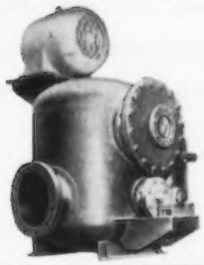


Falk All-Motor Driven Agitator — single unit motor, reducer and propeller assembly.

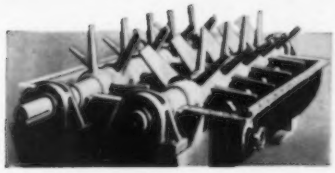
BLEACH PLANT EQUIPMENT

pulp mill engineers for pulp mill service

MIXERS

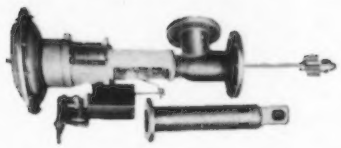


Dorr-Oliver Chlorine Mixer—rubber lined pressure chamber with internal counter-rotating propellers.

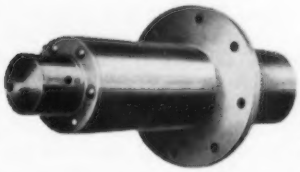


Dorr-Oliver Double Shaft Heater Mixer — rotating assemblies feature alternate propelling vanes and agitating pins. Reinforced stainless steel shell. Bearings outside shell for better protection.

NOZZLES



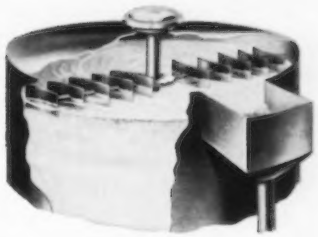
Dorr-Oliver Tower Dilution Nozzles — diaphragm actuated design features uniform, chatter-free throttling with freedom from plugging.



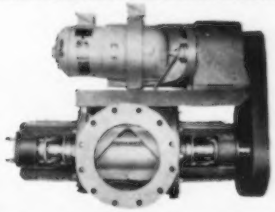
Dorr-Oliver High Density Storage Tower Nozzles — unique design with rotary oscillating action insures minimum wear and leakage.

MISCELLANEOUS BLEACH EQUIPMENT

Dorr-Oliver Top Scraper — rubber covered demountable rake arm provides continuous movement of stock towards launder. Adaptable for low density upflow bleach or chlorination towers.



Dorr-Oliver Rotary Vaned Feeder — for metering pulp or cooked chips in or out of pressure zone. Design minimizes shock loadings.



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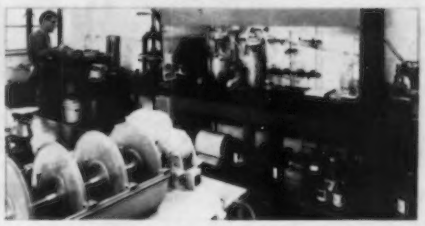
Dorr-Oliver maintains complete research and testing facilities to conduct pulp and paper tests and to carry out any experimental bleaching program. Competent engineering service is also available to design complete bleaching systems to meet individual needs. For further information, write to Dorr-Oliver Incorporated, Stamford, Connecticut.



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Pinpointing the Source Of Coating Variation

The author describes how several causes of variation in coating weights were fractionized and segregated through the use of analysis of variance. As a result, coatings were more even and under greater control.

Fred Streit,
Manager of Technical Services,
Hudson Pulp & Paper Corp.,
New York, N. Y.

The quest for uniformity of quality in production can be considered a critical economic consideration as well as a customer satisfaction problem.

In a product such as gummed sealing tape where Hudson Pulp & Paper is a leading producer, the quest for uniformity in adhesive coating had serious quality and economic overtones. Quality wise, the consumer had to be guaranteed that the adhesive qualities of the tape were uniform from roll to roll, case to case and shipment to shipment. If within a case of ten rolls, four stuck well, four were average, and two hardly stuck at all, a complaint would be registered. Conversely, to provide enough adhesive on the tape to do the job properly and assure that the quality was well above the minimum requirements, it necessitated applying, on the average, a heavier glue coat. This cost money.

Trouble on the Gummer

The problem was excessive variation in coating weight applied by the gummer. It might be noted that the methods described below to find the solution are applicable to almost every coating condition.

In listing the factors contributing to the excessive variation, the following were most suspected:

a. Viscosity of glue solution.

b. Glue flow adjustment on the gummer.

c. Speed of the applicator roll.

d. Grinding of the rolls on the gummer.

e. Over-all speed of the equipment.

f. The base paper being coated.

The author is indebted to Jules McInnis, Robert J. Bovard, Warren J. Powell, Jr., and Edmund J. Crotty of the Southern Division of the Hudson Pulp & Paper Corp. for their work in the solution of this problem.

The first step taken was to find a measure of the basic variation present on the gummer. Objectively, if we could reduce the variation to its smallest measureable terms, we could then eliminate time to time variations or long term changes. In other words, the changes from glue cook to glue cook, and similar changes, would be found to affect the process on a long term cycle.

Cross- vs. In-Machine Direction

The next decision made stated that only one turn of the gumming roll would be considered. Intuitively it was reasoned, that if the basic variation in one turn of the gumming roll could be measured, we could then test each of the above six variables and determine which, if any, was contributing the greatest variation. A mathematical technique called the "Analysis of Variance" provided the tool. This technique enabled us to remove mathematically the variation across the roll and the variation in machine direction. The remaining variation was unassignable or inherent variation. This is the variation we could not explain. If we could find the variables affecting it, we could more closely control the process.

The reasoning which permitted the mathematical removal of cross-machine and in-machine direction variation assumed that this variation could be controlled and removed to wit: rolls could be reground, doctor blades replaced, etc.

Sampling Technique

Gummed paper 45 inches long in-machine direction and the full width of the gummer was taken. This was

TABLE I

COATING WEIGHTS OF 60 SAMPLES TAKEN FROM ONE TURN OF GUMMING ROLL (CODED DATA)

Machine Direction ↑	← Cross-Machine Direction →					
	1	2	3	4	5	6
A	2.2	1.7	2.2	1.8	2.9	4.3
B	1.6	2.2	2.5	2.5	3.9	4.3
C	1.0	2.2	1.5	1.5	3.5	5.1
D	2.2	2.6	2.2	1.9	3.1	4.7
E	2.5	3.4	1.4	1.7	2.7	3.9
F	2.6	3.0	2.2	1.0	2.9	2.9
G	2.9	3.0	2.3	1.7	3.1	2.3
H	1.8	2.2	1.1	0.5	1.9	1.5
I	2.5	1.5	1.7	0.7	2.5	0.7
J	1.6	2.6	2.5	0.6	2.3	1.9

equivalent to one turn of the gumming roll. The sheet was sectioned by cutting the sheet into sixty 4 inch x 6 inch samples; the six-inch direction being across the sheet and the four-inch side aligning with the in-machine direction. Each row in the cross-machine direction was lettered A to J and positions in machine-direction were numbered.

After the test samples were sectioned, they were allowed to come to equilibrium moisture under room conditions; and then were weighed separately to the nearest milligram. Each was next checked to determine per cent moisture before extraction of the adhesive from the base paper was accomplished. The glue coats for each section were converted to a pounds per ream basis. The resultant data are shown in Table I. In each case, the data were coded by subtracting the value 13.0 from the pounds - per - ream reading obtained above; viz, for sample section D3, 15.2 lbs./ream — 13.0 = 2.2 (the value recorded in Table I).

Residual Variation

Examining this table prior to any further calculation, it is fairly apparent that considerable variation is present in one turn of the gumming roll. However, the question remains as to how much of this variation is due to in-machine direction, cross-machine direction, or is unassignable (residual).

By use of the Analysis of Variance, a sample of which is shown, it was determined that the average glue coat was 15.32 lbs. and the variation which cannot be explained was 14.3 per cent of average.

The salient consideration is that 14.3 per cent can be used as a comparison. Any change in conditions which reduces this 14.3 per cent is favorable—an increase, unfavorable.

Assignable Residuals

Inductively and in discussion with the builder of the gumming equipment, it was found that a number of the six variables listed previously could be eliminated.

1. The faulty grinding of the rolls would give a fairly uniform pattern of variation with highs and lows occurring in regular positions. The data did not substantiate this.

2. The base paper could be eliminated from this analysis in that the method of extraction eliminated the effects of the paper and its absorbency characteristics. The variation of the paper was measured separately and was to be considered in the control techniques in the manufacture of our paper.

3. The machine builder advised us that the glue flow adjustment on the gummer and the speed of the applicator roll would have effects other than a short term inherent variation which we were studying. Predominantly, it would affect the overall glue coat level.

Unattributable Residuals

This then left two variables—viscosity of glue solution and over-all speed of equipment. To investigate the effects of these, an experiment was designed as follows:

1. Increase temperature of coat-

TABLE II

ANALYSIS OF VARIANCE

Sample Calculation to Show How Amount of Variation from each Cause was Determined.

Row	Row Totals	STR²=Row Totals Squared
A	15.1	228.01
B	17.0	289.00
C	14.8	219.04
D	16.7	278.89
E	15.6	243.36
F	14.6	213.16
G	15.3	234.09
H	9.0	81.00
I	9.6	92.16
J	11.5	132.25
10	139.2	2010.96

Column	Column Totals	STC²=Column Totals Squared
1	20.9	436.81
2	24.4	595.36
3	19.6	384.16
4	13.9	193.21
5	28.8	829.44
6	31.6	988.56
6	139.2	3437.54

Number of Observations = N = 60
Overall Total Squared = $T^2 = (139.2)^2 = 19376.64$
Average = 2.32 Pounds Plus 13.0 Pounds Coded Out of Data = 15.32 Pounds
Total of Each Observation Squared = 379.58

Variation Due to:	Degrees of Freedom	Sum of Squares	Mean Square Deviation
In-Machine Direction	(No. Rows − 1) = 9	$\frac{STR^2}{\text{No. Columns}} - \frac{T^2}{N} = 12.216$	1.3573*
Cross-Machine Direction	(No. Columns − 1) = 5	$\frac{STC^2}{\text{No. Rows}} - \frac{T^2}{N} = 20.810$	4.1620*
Residuals (unattributable)	(R − 1) (C − 1) = (9) (5) = 45	Difference of subtotal of above from Grand Total = 23.610	0.5247
Grand Total	(N − 1) = 59	Total of each observation squared $- \frac{T^2}{N} = 56.636$	

*For this analysis, we have no further use for measures of the machine direction and cross direction mean square deviation.

To Find the Per Cent Variation:

$$\frac{3\sqrt{\text{Mean Square Deviation of Residual}}}{\text{Uncoded Average}} \times 100 = \text{Per Cent Variation}$$

$$\frac{3\ (.724)}{15.32} \times 100 = 14.3\%$$

ing solution in small successive increments.

2. Decrease temperature of coating solution in small successive increments.

3. Find optimum temperature which results in minimum variation.

4. Maintaining coating solution at this optimum temperature, increase speed of gummer, in 10 f.p.m. increments, up to capacity.

5. Maintaining coating solution at optimum temperature, decrease speed of gummer, in 10 f.p.m. increments, down to minimum capacity.

A total of 11 experiments were run varying temperature of coating solution. Within the range we were operating, a parabolic curve developed. It was found that below and above the temperature range, variation increased substantially.

At optimum temperature, the glue coat variation dropped to 4.3 per cent—a total of 10.0 per cent less than what was found in the original analysis. The critical range was plus or minus 2° about the optimum temperature.

Some of the tests were repeated at various points in the same roll with the temperatures held constant. The variation held constant.

Using the optimum temperature, the second phase of the experiment began. The speed of the gummer was varied and samples taken for analysis.

The remarkable result was that speed would be increased to capacity (governed predominantly by drying capacity) with no significant effect on the variation.

As a result of this study, the following steps were taken:

1. Installation of a jacketed glue pan for controlling glue temperature.

2. More uniform cooking for adhesive mixture in an attempt to deliver it to the pan at a constant temperature.

3. Installation of control limits of glue coat at the levels of capability. This enabled us to control the long term variation by making proper adjustment prior to exceeding rejection specifications.

It is to be cautioned that the statistical techniques involved only be applied and used by a thoroughly trained statistician. The method outlined above illustrates that the application of statistical techniques coupled with inductive reasoning and competent process knowledge can solve problems hitherto considered as almost unsolvable.

How to Kill a Fork Truck In 13 Easy Lessons

Would you pour water into a fork truck's gas tank? Would you send a fork truck out on a job without a drop of oil in it? Would you put antifreeze into the radiator on a hot July day?

Maybe *you* wouldn't. But apparently some people do. According to Clark Equipment Co., fork truck manufacturer, a study of the nature and cause of fork truck ailments referred to their service division indicates that such antics are responsible for at least 10 per cent of fork truck damage.

The cause, obviously, is plain carelessness. Rather than giving stern lectures and issuing dire warnings, Clark has taken the opposite approach and made available an "easy to follow checklist of things to do to kill a fork truck."

"Perhaps by pointing out how easy it is to damage a fork truck through carelessness we'll reduce the 'human errors' that are costing industry thousands of dollars a year."

Quick Reference Guide for Killing Fork Trucks

THE KILL	THE CURE
1. Ignoring the manufacturer's lubrication specifications is an easy and sure way of doing permanent damage to a fork truck. A clever trick is to use one kind of lube for *all* lubrication. Chassis grease, for example. This probably won't hurt the chassis but will certainly play havoc with the engine, steering gear, lift chains and other parts requiring lighter oils.	Be consistent about following the manufacturer's suggestions for lubrication, regarding both the type of lube to use and the frequency of lubrication.
2. When looking for a container with which to fill the gas tank, pick up the water can. But don't look inside. There might be an inch or two of water left in the can. If this is poured in the gas tank, eventually the engine will stop. Perhaps no serious damage will be done, but several hours might be spent looking for the trouble.	Use a can that's used for gasoline only, not water or oil. And make sure it's clean and dry; dirt in the gas tank will cause more harm than water.
3. The removal of both tilt cylinders for periodic inspection presents a fine opportunity for ruining the truck's upright. This can be accomplished by removing the cylinders without first securing the upright. When the second cylinder is taken out, the upright, having no further support, will crash to the floor.	Use a mobile crane, chain lift or some such device to secure the upright when the tilt cylinders are removed.
4. Rubber gaskets and seals, although small, are important to proper truck operation. To hasten the failure of such parts, clean them in cleaning solvents with a mineral base. This will cause the rubber parts to become tacky, soft and swollen and generally unfit for use.	Clean rubber parts in denatured alcohol or some other non-mineral solvent.
5. If the master brake cylinder is scored and pitted, brake operation will be faulty. To do a good job of scoring the cylinder, polish it with emery cloth or sandpaper. These will permanently scar the cylinder.	Always use crocus cloth to clean cylinders of pressure marks and discolorations.
6. A crack in the cylinder block is usually considered major damage. To accomplish this, wait till the engine overheats, then immediately pour cold water into the radiator. If the engine is hot enough and the water is cold enough, the cylinder may crack.	When engine overheats, do not add water until the engine has cooled. Then start the engine and add water slowly.
7. Cold weather provides excellent opportunities for damaging fork trucks. For example, if the cooling system becomes frozen solid, start the engine immediately and run it at high speed. This could cause extensive damage to the radiator, cylinder head, block and just about everything else.	Never start the engine when the cooling system is frozen. Tow the truck to a warm building and let it thaw completely.

AT ALBANY FELT COMPANY

Quick Reference Guide (continued)

THE KILL	HOME REMEDY
8. Another cold weather trick is to add water to the battery when the truck is operating in freezing temperatures. Since the water can't mix with acid, it will probably freeze, perhaps cracking the battery case.	Let the truck, or at least the battery, warm up before adding battery water in very cold weather.
9. Additional damage to the battery can be done by always filling it full of water rather than just to the water line plainly marked inside each case. With too much water the battery will boil over readily, thus allowing battery acid to corrode metal parts.	Fill batteries with water only to the level indicated inside the case by the manufacturer.
10. When adjusting the distributor, don't worry about maintaining proper gap between points. A few tenths of an inch difference will throw the distributor off timing and affect the performance of the whole engine.	For smooth and reliable performance it is of utmost importance that proper point gap be maintained. (For measurement, a wire feeler gauge is more accurate than a flat gauge.)
11. Since moisture in the ignition coil will make the coil inoperative, always steam clean the coil, or better yet, dunk it up and down a few times in water. This will cause rust and corrosion and considerably shorten the life of the coil.	Never get an ignition coil wet. Use an air blast to clean out dust.
12. Upright damage can be accomplished nicely by neglecting to adjust tilt cylinders so that they give an equal degree of forward and backward tilt. If tilt is not equal, one cylinder will reach its travel limit ahead of the other cylinder, causing the upright to bind. Consistent wear of this type will permanently warp the upright.	Periodic inspection will indicate whether tilt cylinders are functioning equally. Deviations should be corrected immediately.
13. Through the simple expedient of keeping the fan belt too tight, there's a fine possibility of (a) breaking the fan belt, and (b) exerting enough side thrust on the water pump and generator bearings to cause premature wear.	Adjusted correctly, the fan belt should have about one inch of free play.

PJT NEW LITERATURE

Welding Fittings

Covers its expanded line of seamless carbon steel welding fittings. This catalog contains complete tables of specifications, engineering drawings, ASA tables and other useful information. Catalog 593. Dresser Mfg. Division, Bradford, Pa.

Basic Properties of Aluminum Silicate Pigments

Provides data in tabular form which gives both physical and chemical characteristics of twelve series of ASP products. Technical Bulletin 1001. Minerals & Chemicals Corp. of America, Menlo Park, N. J.

Metron Torquemeter

Describes the Series 85 torquemeters for measuring dynamic torques which cover ranges from 5 to 250 oz. in full scale on shafts turning from 50 to 12,000 r.p.m. Metron Instrument Co., 432 Lincoln St., Denver 3, Colo.

RF Industrial Fans

Introduces a radial blade series of centrifugal fans designed for heavy duty industrial service in ventilating and material handling. Gas tight and corrosion resistant construction can be furnished when required. Bulletin RF 589-I. Garden City Fan Co., 801 N. 8th St., Niles, Mich.

Sensater Hydraulic Crane Scale

Illustrated sales copy shows the many uses for this scale. Also provides specifications and features. Martin-Decker Corp., 3431 Cherry Ave., Long Beach 7, Calif.

Super Coilife Winding

Lists the industry applications for which the solventless epoxy encapsulation is best suited, and outlines its physical and chemical properties. Use of this is supposed to give extra motor life. Booklet B-7622. Westinghouse Electric Corp., P. O. Box 2099, Pittsburgh 30, Pa.

Series F No. 933 Traxcavators

Details design improvements, increased power, performance and work capacity of this Traxcavator. Bulletin 33286. Caterpillar Tractor Co., Peoria, Ill.

Walkies—What They Can and Can't Do

Contains descriptive information on seven basic types with information on how to select the best truck type for a given job. Also includes data on special attachments and specially designed trucks. Moto-Truc Co., 1954 E. 59th St., Cleveland 3, Ohio.

"Safe Water" is the Thing

Tells how this dependable chemical feed pump (chlorinator) gives "big city" protection against water-borne bacteria. F. E. Myers & Bro. Co., Ashland, Ohio.

Syntron Products

Presents descriptions, data and specifications on all Syntron products. This catalog is illustrated to show products and products in operation. Catalog 591. Syntron Co., 587 Lexington Ave., Home City, Pa.

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1 *An Albany Felt sales engineer helps a customer get to the root of a basic problem.*

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*Patent applied for.

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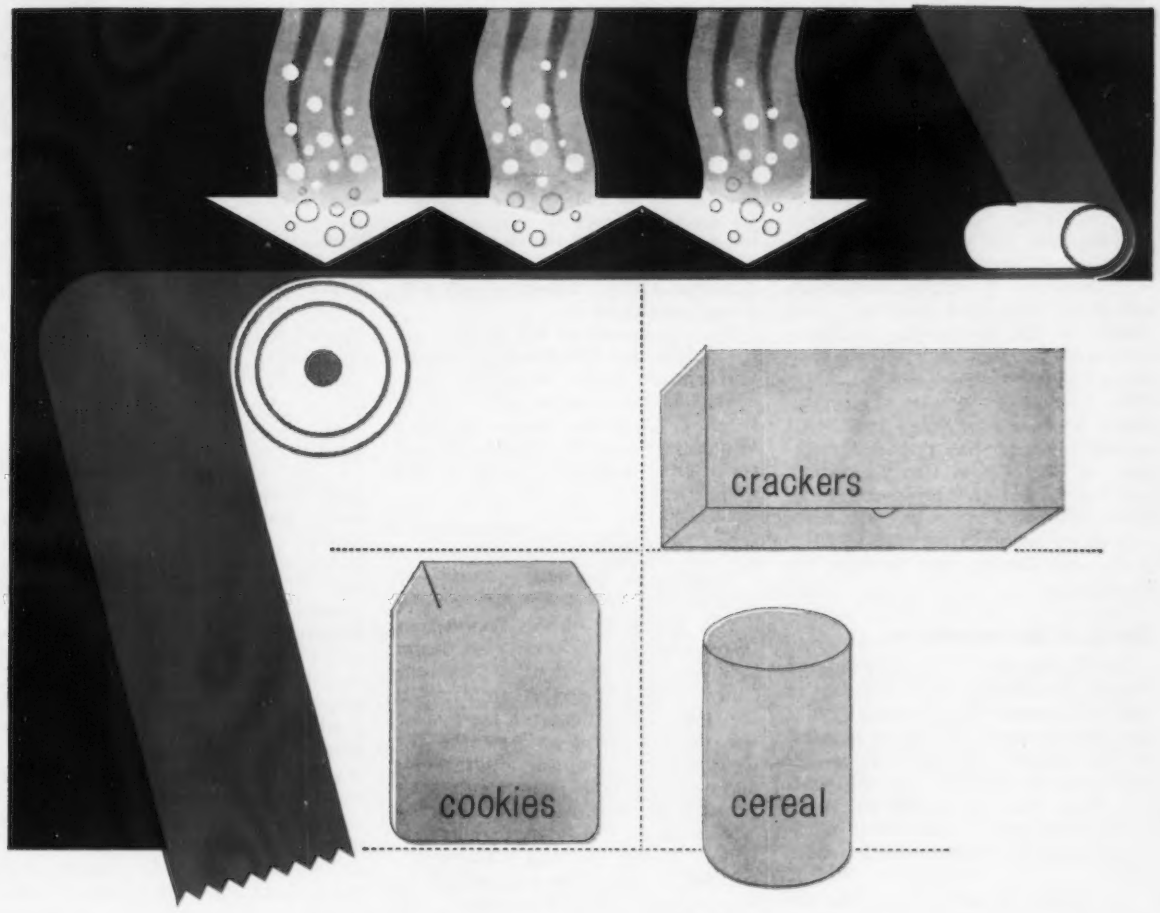

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U. of M. Pulp & Paper Foundation Host to Industry at Open-House-Research Days

More than 120 persons, representing an assortment of 20 pulp and paper companies, 23 supplier industries, and other interested concerns, were guests of the University of Maine during May 1 and 2, when the eighth annual Open-House-Research Days were presented by the Pulp and Paper Foundation. Since 1952, this annual program has provided members of the Foundation a graphic progress report of the research projects currently under investigation, and an opportunity to meet the students and faculty, and to view the facilities.

The U. of Me. Foundation

The University of Maine Pulp and Paper Foundation was created in 1950 by a group of university graduates who forecast the future demand of the paper industry for college graduates in forestry and engineering. They also foresaw the great demand which would come from industry in general for engineering graduates.

A program of financial aid was put into effect. This program, as well as the research activities of a segment of the University faculty, has been made possible by the support of over 70 companies subscribing annually to the Foundation.

The funds derived from company, individual and junior memberships have been expended largely to meet the primary objectives of the Foundation in interesting students in the industry; in providing aid for qualified students; in augmenting the instructional staff in this specialized field; and in providing necessary equipment for laboratories.

Since the Foundation's inception, it has graduated 81 students, who are now scattered thoughout the United States, Canada, and foreign countries. This year, another 42 students are expected to enter the pulp and paper industry in various capacities.

Project Demonstrations

Twenty-four research projects related to pulp and paper industry problems, ranging over a wide and varied field of interest, were demonstrated by the students and their faculty supervisors during the morning sessions of the two-day meeting. Abstracts of most of these demonstrations as they appeared, are presented elsewhere.

For the benefit of the guests, test runs of the new $25,000 experimental fourdrinier paper machine were made. The machine, a special gift of Hugh J. Chisholm, board chairman of Oxford Paper Co., trims a 12-inch sheet at a maximum speed of 200 f.p.m.

Noon Luncheon

Frederic A. Soderberg, vice president of F. C. Huyck & Sons, and also a vice president of the Foundation, introduced the University of Maine president, Dr. Lloyd Elliot, who officially greeted the representatives to the Open-House-Research Days meeting. He remarked on how the Department of Chemical Engineering had retained its accreditation largely through the work of the Foundation.

William H. Chisholm, president of Oxford Paper, Co., and a University trustee, described the products of the Foundation: "tuned-to-times" students, a reputation of research and education, and benefits of equal import to the Foundation, to the University, and to the students.

Two recent graduates of the program, David R. Alexander, class of 1956, now with J. O. Ross Engineering Div., Midland-Ross Corp., and John M. McClure, class of 1952, with West Virginia Pulp and Paper Co., described their impressions of opportunities in their respective fields; suppliers, and pulp and paper manufacturers.

M. C. MacDonald, president of the Great Northern Paper Co., iterated the importance of Foundation-trained technical men to the industry.

Mr. Soderberg terminated the luncheon by naming the Foundation's scholarship underwriters and corporate members.

Afternoon Session

Students enrolled in the Pulp and Paper scholarship program were introduced to the meeting by Weston S. Evans, dean, College of Technology. Later these students asked questions of a panel composed of representatives of the industry: namely, W. H. Chisholm, president, Oxford Paper Co.; E. H. Clapp, president, Penobscot Chemical Fibre Co.; W. F. Daniell, manager of research and development, Great Northern Paper Co.; A. E. H. Fair, president, Brown Co.; F. C. Goodwill, resident manager, St. Regis Paper Co.; H. Holden, president, Gilman Paper Co.; H. C. Moore, president, Beloit Iron Works; P. F. Neumann, manager, Rosin Size Sales, Hercules Powder Co.; and W. A. Ketchen, technical director, Fraser Companies, Ltd. L. C. Jenness, Head, dept. of Chemical Engineering, moderated. Both sides, and the audience, asked and answered questions which ranged from: "What does the employer expect from the technical graduate in regard to proficiency in English grammar and report writing?" to "Why does a PhD generally receive a higher starting salary than a B.S.?" or "What does the student expect for summer employment?" and others.

Dinner Meeting

J. L. Ober, retired vice president of Scott Paper Co., president of the Foundation, acting as master of ceremonies for part of the festivities, described in his introductory remarks the parts that the Foundation and the University play in a "live and enthusiastic experiment in education."

After introducing the head table, Mr. Ober then presented Thomas B. McCabe, president, Scott Paper Co., as the featured speaker of the evening. Mr. McCabe confined his remarks largely to the health of the pulp and paper industry as a whole, but emphasized the growing and imperative need to expand greater sums of the income dollar on research and development in all phases of manufacturing. Secondly, he related how the Foundation has contributed its part to this healthy condition. He added that it is necessary, in order to continue in this optimistic state, to arouse the interest of the general public in the industry, and, particularly in young students, destined to become the technical people of tomorrow's research and development.

I. TAPPI Standard Beater vs. Mead Refiner

The beater has long been established as an indispensable piece of equipment to the paper industry. There have been many attempts to replace the beater; some of these have been variations in the original Hollander beater itself. The conical refiner has slowly replaced the beater and more recently disc refiners are becoming popular.

The Mead refiner, a laboratory disc refiner, is being compared with the laboratory Valley beater. Two types of pulp are being studied, one being a hard pulp and the other a soft pulp. The comparisons are being made at equal freenesses, and include the usual tests as well as fiber classifications and microscopic analysis. From these tests we should be able to determine which piece of equipment produces the changes by brushing and fibrillation rather than cutting the fiber and thus produces greater pulp strength qualities.

Faculty Supervisor: Andrew J. Chase,
Department of Chemical Engineering
Student Demonstrators: Jay G. Herr
Bruce G. St. Ledger

II. Effects of Chemical Treatments on The Drainage Characteristics of Wood Pulp

The drainage characteristics of a wood pulp are dependent on a large number of factors which can be categorized as follows:

(A) Chemical and physical characteristics of the pulp.

(B) Chemical and physical characteristics of the liquid medium.

This project is concerned only with category (B) and involves mainly the effects on drainage produced by changes in temperature, pH, total acidity, and electrolyte concentration. It is recognized that factors in one of the categories may be influenced by changes in the other. Therefore this work is being prosecuted in a manner which will minimize this interdependence.

Faculty Supervisor: Andrew J. Chase,
Department of Chemical Engineering
Student Demonstrator: David A. Waite

III. A Study of Some of the Variables Encountered in the TAPPI Standard Method for Making Handsheets

The authors are attempting to determine whether or not any deviations from the TAPPI standard beater processing of pulp (T-200 M-45) and/or the TAPPI standard method of forming handsheets for physical tests of pulp (T-205 M-58) will have any effect on the physical properties of the resultant sheets.

In all the tests being performed, Penobscot Chemical Fibre Co. bleached sulfite pulp is being used. It is felt that for a given pulp there are numerous variations from the standard procedure which can be studied. Among these are: changes in consistency, temperature, and roll pressure in the beater. In the making of handsheets the rate of agitation in the sheet mold, method of couching, and method of pressing seem to be areas where some deviations from the set procedure are likely.

As many of the above variables will be investigated as time permits.

Faculty Supervisor: Andrew J. Chase,
Department of Chemical Engineering
Student Demonstrators: Orrin B. Clifford
William M. Delaware

IV. Demonstration of the Pilot Plant Paper Machine

Several design features of the experimental laboratory fourdrinier paper machine, such as the construction of the head box, have been investigated. Work has also been done on a system for stock preparation and handling before the machine. Certain improvements have evolved that will be evaluated when the machine is made completely operable.

Present work, therefore, is directed towards putting other components of the machine in operation.

Faculty Supervisor: John F. Gorham,
Department of Chemical Engineering
Student Demonstrators: Allen J. Nadeau
R. Fred Chasse
Martin N. Grant

V. A Study of the Effect of Drying with the Yankee Dryer on Shrinkage and the Physical Properties of Paper

It is generally believed that there is no shrinkage when paper is dried on the Yankee dryer. In this experiment an attempt is made to verify this belief and determine the amount of shrinkage should any occur. Also paper is removed from the dryer at different dryness and the degree of shrinkage on this paper is determined.

Physical tests will be run on all paper removed from the dryer to determine the effect that shrinkage, or lack of it, has upon the paper produced.

As to date in this investigation, there appears to be a negligible amount of shrinkage on the Yankee dryer. However, more accurate measurements will be made before a definite conclusion is drawn. The effect of shrinkage tends to increase the physical strength of the paper. The results of this investigation will show the effect of these variables on the physical strength of the paper.

Faculty Supervisor: Charles M. Howell,
Department of Chemical Engineering
Student Demonstrators: William E. Brown
Frederick A. Martin

VI. Dry Cutting of Cellulose Fibers

The purpose of this project is to find a method to cut cellulose fibers in the dry state, and to find the variations in the physical test results caused by this nearly pure cutting of the fiber.

This is to be done by first cutting the fibers with available equipment and then analyze the resultant fibers as to the degree of cutting. If a successful method of cutting is found, the next step will be to find the variations in the physical tests results.

Faculty Supervisor: Charles M. Howell,
Department of Chemical Engineering
Student Demonstrator: Donald L. Robertson

VII. Design of a Blow-Pit for the Pilot Plant Digester System

The project in designing the blow-pit has progressed very satisfactorily. The literature has been surveyed to determine the most economical and versatile materials to use in the laboratory.

Digester operating procedures and cooking conditions, such as temperatures, pressures, and capacities, have

been determined and optimum specifications calculated for the blow-pit.

A blow nozzle from the blow line to the pit has been designed to reduce the pressure in the blow-pit and also to condense some of the gases reducing atmosphere pollution.

At the present time, cost data on construction materials are being collected. The quick-opening blow valve and blow tank are the two pieces of equipment being given special emphasis.

Faculty Supervisor: John F. Gorham,
Department of Chemical Engineering
Student Demonstrator: William J. Weiss

VIII. Liquid-Liquid Extraction Spray Column

Liquid extraction is a means of separation based upon chemical characteristics rather than such physical properties as boiling point and relative volatility. The spray extraction column operates on the principle of mixing by density difference two liquid phases introduced individually at the top and bottom of the column. The lighter phase introduced at the bottom of the tower is dispersed as a spray into the continuous heavy phase, the droplets formed provide a large contact area for mass transfer within the column.

This project is concerned with the design and installations of a spray extraction column for the purpose of determining the effect of droplet size on column efficiency and capacity.

Faculty Supervisor: Andrew J. Chase,
Department of Chemical Engineering
Student Demonstrator: Fred P. Tarr

IX. The Mechanical and Chemical Effects on the Settling Rate of Pulp Fibers

The object of this project is to determine the settling rate through distilled water at constant temperature of bleached sulfite pulp fibers that have been subjected to varying degrees of mechanical treatment and, also, various types of chemical treatment. The mechanical treatment includes three classes: (1) non-beaten, (2) ball-milled ½ hour, and (3) ball-milled 1 hour. The chemical treatment includes: (1) precipitation of size on fibers, (2) addition of mineral filler, and (3) dyeing of fibers.

Faculty Supervisor: Andrew J. Chase,
Department of Chemical Engineering
Student Demonstrator: Stanley J. Norbert

X. The Investigation of Vacuum Filtration of Pulp Slurries

"Can we effectively employ the use of a vacuum filter as a means of efficiently dewatering our stock?" This is a common question asked in many mills where some type of fiber is being processed. The word "efficiently" involves obtaining the dryest possible cake with a minimum of fines lost through the filter during a reasonable period of time.

The object of this research work is to examine the effects of such variables as consistency, fiber length, freeness or drainage and vacuum upon the efficiency and capacity of a filter test leaf for one particular type of stock. At present, sulfiite pulp stock is being used as the filter slurry. Further work is planned to employ various types of fiber slurries in order that the characteristics peculiar to these slurries may be investigated.

Faculty Supervisor: Richard E. Durst,
Department of Chemical Engineering
Student Demonstrators: Edwin D. Healy
Lester E. Reid

XV. A Study of the Operating Characteristics of the Bowen Spray Dryer

A study of the Bowen spray dryer is aimed at a better understanding of the simultaneous mass and heat transfer in spray drying and the performance of this particular spray drier. The project is directed particularly to the determination of the important items involved in heat transfer calculations on the unit operation of drying, like temperature driving force and heat transfer coefficient. Special temperature and humidity measurements at different points of the spray dryer are being considered and are expected to throw light on the performance and thermal efficiency of the spray dryer. As to the performance, the point of interest is the determination of the section of the dryer where drying actually takes place. Another aspect included in the study is the investigation of the effect of feed and drying gas temperatures and rates on the performance of the spray dryer and the nature of the product.

Faculty Supervisor: Richard E. Durst,
Department of Chemical Engineering
Student Demonstrator: Nicolasa P. PeBenito

XVI. The Effect of Particle Size and Particle Size Distribution of Coating Clay on the Rheology of Coating Clay Slurries and Colors

(This project is sponsored by TAPPI)

A rheological study of coating clay slurries has been made to determine the effect of different sized clay particles upon their flow properties. Four particle sizes of clay were used in the experimental work: 0 to 1 micron, 1 to 2 micron, 2 to 5 micron, and 5 to 10 micron. The original clay from which the fractions were obtained was also used.

The effect of each individual fraction upon the rheology of the slurries at the point of maximum fluidity was first investigated. Then by mixing samples from each of the clay fractions the rheological curve for the original crude clay was approximated. This is fundamental work pointed towards a more complete understanding of the rheological properties of coating colors.

All evaluations were made using the Hercules Rotational viscometer.

Faculty Supervisor: Richard E. Durst,
Department of Chemical Engineering
Student Demonstrator: Frederick A. Rummel

XVII. A Study of Some Variables in Electrolytic Pulp Bleaching

Following the recommendations of previous investigators an extended study of the variables in the bleaching of pulp by electrolysis is undertaken.

Emphasis is directed to the investigation of the most practical materials for electrodes. Platinum, stainless steel, magnitite, nickel, and graphite wrapped in dialysis film are being evaluated.

Second, the most efficient length of bleaching time as a factor in electrolyte consumption, pulp brightness, and electrical cost will be considered.

Faculty Supervisor: Richard E. Durst,
Department of Chemical Engineering
Student Demonstrator: David E. Peakes

XVIII. Determination of Drying Rates of Fibrous Sheet Materials

This project is concerned with attempts to accurately determine the drying rate curves for various types of beaten wood pulps. As now envisaged, British sheet machine handsheets will be used as test samples, and

will be dried by electrically heated air at constant humidity conditions. Measurement of water loss during drying will be made, if feasible, by detecting increased radiation through the samples from a naturally radioactive ore such as uraninite.

Faculty Supervisor: Andrew J. Chase,
Department of Chemical Engineering
Student Demonstrator: James H. Turner

XIX. Mixtures of Bagasse Pulp and Sulfite Pulp as a Furnish for Writing Paper

Bagasse fibers are short with comparatively high hemi-cellulose content. Paper made from bagasse pulp will be quite dense with low tear resistance and opacity. With the admixture of long fibered pulps, for instance, sulfite pulp, bagasse pulp could be a very desirable supplement to wood pulp, for the manufacture of fine papers such as bond, tablet, ledger papers, etc.

When blended in suitable proportions, bagasse pulp improves sheet formation, surface characteristics and printability of such papers, pick and fuzz will mostly be eliminated.

The opacity of bagasse pulp is low. Any percentage of filler addition up to a maximum of about 12% may greatly increase the opacity of the paper, smoothness of the surface and also printability characteristics.

The ratios of bagasse, sulfite pulps and clay addition to provide good sheet characteristics will be the outcome of the project under investigation.

Faculty Supervisor: Andrew J. Chase
Department of Chemical Engineering
Student Demonstrator: Anantha P. Chowdhary

XX. An Investigation of The Relative Effects of Mechanical Treatment and Chemical Additives on The Strength Properties of Wood Pulp

An ammonia-base sulfite pulp is being used in this work. Handsheets are being made of the pulp, refined for different lengths of time. Additionally, handsheets containing various additives, such as rosin, alum, clay filler, etc., are being made.

It is anticipated that comprehensive physical tests on the handsheets will indicate the relative effects of each of the additives on strength changes.

Faculty Supervisor: Andrew J. Chase,
Department of Chemical Engineering
Student Demonstrator: William B. Stimmell

XXI. The Measurement and Evaluation of Sheet Formation

This project is concerned with a study of paper formation and means of measuring formation by various types of physical tests. The purpose of this project is to find a means of evaluating sheet formation.

There are two main problems to be solved in connection with this project; namely, a method of reproducing a sheet of a given grade of formation, and to find a physical test or an instrument which would indicate the grade of sheet formation. The first problem may be solved by altering the TAPPI method of making hand sheets. The second problem remains to be solved.

Faculty Supervisor: John F. Gorham,
Department of Chemical Engineering
Student Demonstrator: Keith W. Roberts

XXII. A Study of Fiber Adhesion to Paper Machine Press Rolls

(This project is sponsored by Stowe-Woodward, Inc.)

This study is a continued investigation to determine the factors influencing fiber adhesion to paper machine press rolls. The objects of this phase of the investigation have been twofold. One has been to initiate a program with industrial manufacturers whereby information may be obtained, samples taken, and some research accomplished by working with the problem on an industrial scale. The second object has been to determine the effect of ions present in the stock furnish on the streaming potential of roll materials. This is being accomplished by measuring the streaming potential of the roll materials with aqueous solutions of the soluble and fine matter in furnish and doctor blade samples as the streaming liquid.

Faculty Investigator: John F. Gorham,
Department of Chemical Engineering
Student Demonstrator: Ralph L. Stormann

XXIII. Reduction of Sulfite Waste Liquor Pollution by Means of Artificial Aeration

(This project is sponsored by the National Council for Stream Improvement, Inc.)

The purpose of this work is the study of the effect of some surface active agents on the rate of absorption of oxygen in water in bubble aeration. The air dispersing system used in this work consists of a perforated horizontal cylinder rotating at high speed. The air is introduced into the water, through the perforations of the cylinder, where it is dispersed into small bubbles by the shear acting at the boundary of the cylinder.

Faculty Supervisor: Stefan A. Zieminski,
Department of Chemical Engineering
Student Demonstrator: Charles C. Goodwin

XXIV. Feasibility of Scaling Pulpwood by Weight in a New England Situation

Because the present method of scaling pulpwood by the cord has appreciable disadvantages and because weight scaling has proven successful in other regions, this study is being conducted to determine the feasibility of applying the weight method in a New England situation. The study deals with only truck loaded, rough hardwoods under specific conditions, namely that the wood be freshly cut during the summer season and have its source in the supply area for one mill.

Field work was carried out in two phases. The first consisted of collecting suitable pulpwood samples for the eight hardwood species considered and accounting for the weight affecting variables of wood specific gravity, moisture content, bark content, and stick size. The second phase dealt with comparing actual pulpwood load weights with predicted weights based on the information from phase one. Results from these comparisons will indicate how well the variables were accounted for.

From existing data, there is a fairly good indication that weight scaling can be applied with less variable results than traditional cord scaling.

Faculty Supervisor: Harold E. Young,
School of Forestry
Student Demonstrator: George W. Weiland

ACKNOWLEDGMENTS

A number of the research projects being demonstrated were made possible wholly or in part through the financial assistance of the following:

Eastern Fine Paper and Pulp Division of Standard Packaging Corp.
E. I. du Pont de Nemours & Company, Inc.
National Council for Stream Improvement, Inc.
Stowe-Woodward, Inc.
Technical Association of the Pulp and Paper Industry

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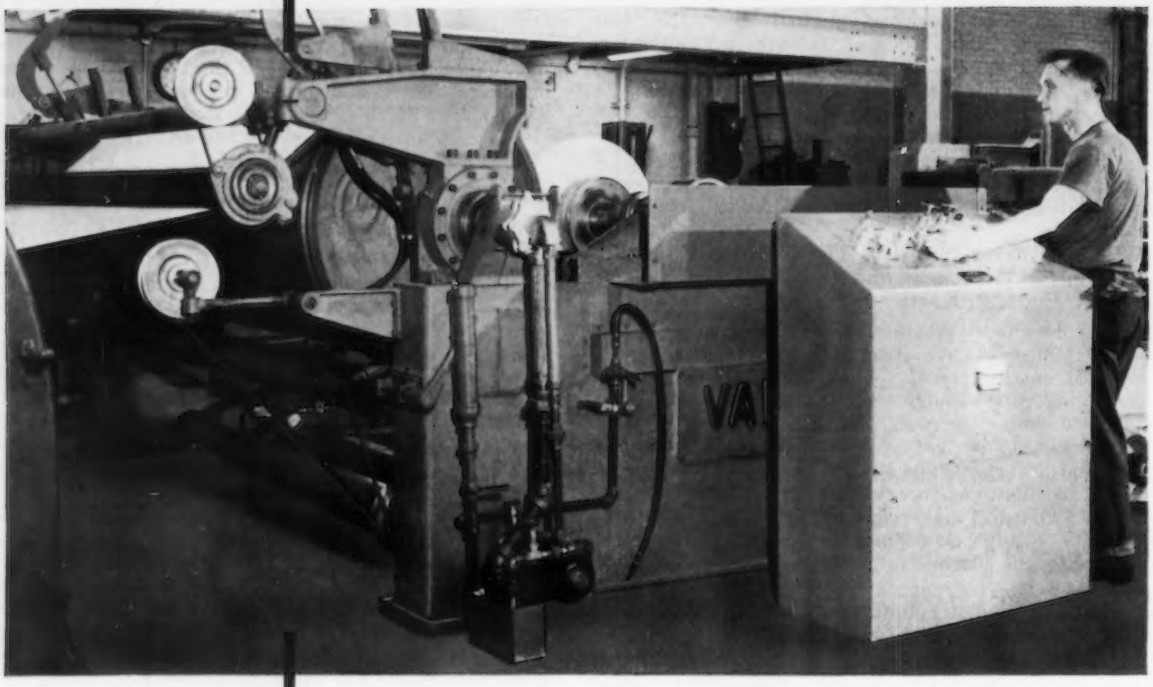

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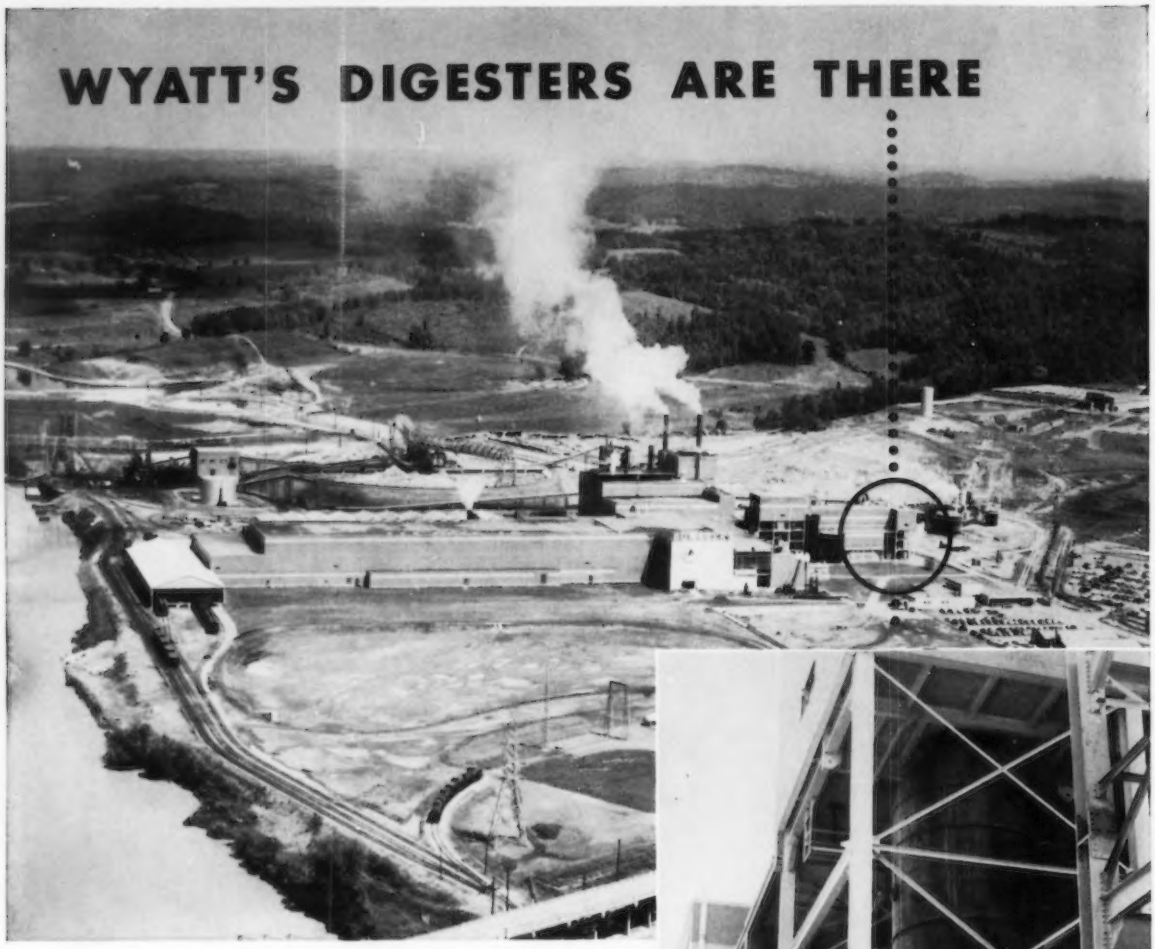

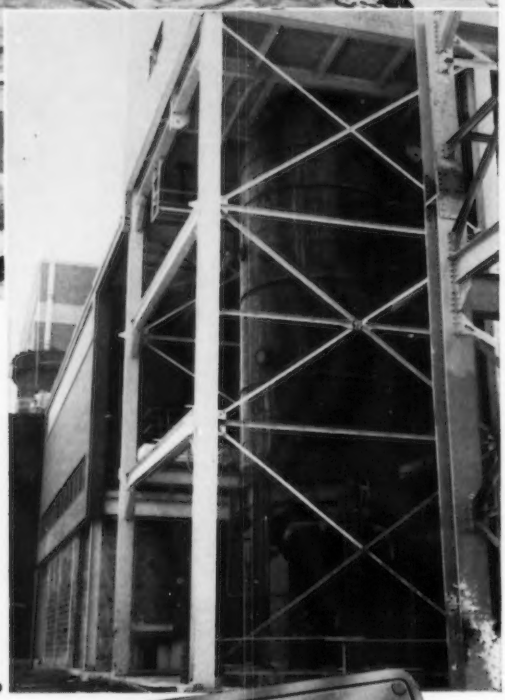

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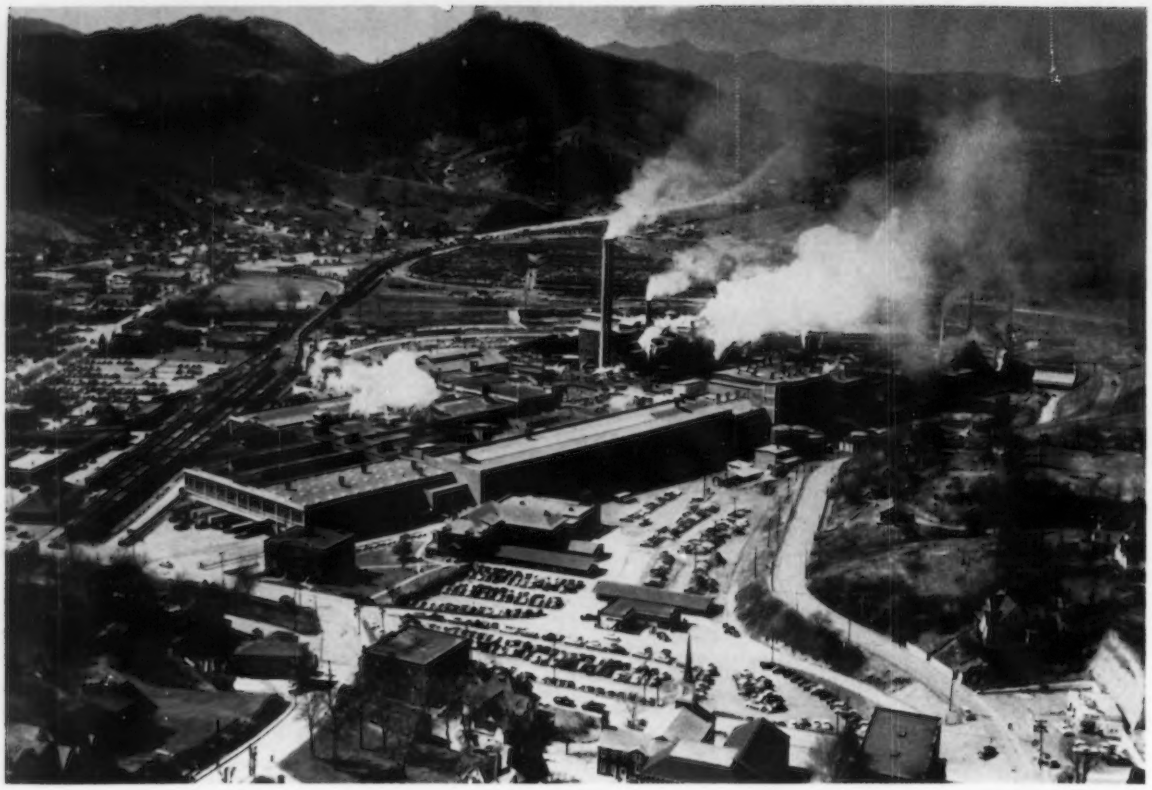


Champion Unveils Biggest Fine Paper Machine

Ernest F. Barker
Special Correspondent
Paper Trade Journal

Champion Paper and Fibre Co. last week commissioned its new No. 20 paper machine in its Canton, N. C., mill. The brief but impressive ceremony included such impressive showmanship as the ringing of a historic bell and the parting of a curtain with an overhead crane to reveal the machine, the world's largest fine paper making machine. The machine was "unveiled" and commissioned in front of a group of visiting dignitaries and members of the press, including North Carolina's Governor Luther H. Hodges. The bell, which was rung four times by Champion's Board Chairman Reuben B. Robertson to "commission" the machine, was first used in 1906 to call workers to their jobs when the firm's plant at Canton was first being erected and before there was steam in the boilers with which to blow a whistle.

Machine Highlights

Champion's new No. 20 machine is the world's largest fine grade paper machine. It will manufacture bond, offset, mimeo, tablet and similar grades. The machine is rated for speeds up to 2,000 f.p.m. Sheet width is 230 inches. The machine and winder are 420 feet over-all length and the fourdrinier wire is 246 inches wide. The machine is 27½ feet high at the presses and 25½ feet high at the calender stacks.

The addition of No. 20 paper machine to the Canton mill means employment of over 200 new people for the division and an increase in Champion's Canton payroll by a million dollars, bringing the total annual payroll for this division to eighteen million dollars. No. 20 was designed by Champion engineers and manufactured by the Beloit Iron Works, Beloit, Wis.

The history of Champion's Carolina Division dates back to 1906. It includes three famous "pulping firsts": Canton was the first mill to make bleached pulp from chestnut, the first to produce bleached kraft from Southern pine and the first to produce bleached hardwood kraft. The mill began to operate in 1908 with four pulp machines. A paper machine was added in 1922, another in 1924, one in 1932 and one in 1947.

No. 20 started operation on February 17, 1959, at 1:04 A.M. Today the Carolina Division has five paper ma-

chines with total paper production of 675 tons, three paperboard machines producing 225 tons per day and one of the original pulp drying machines which still supplies the Hamilton, Ohio, mill with 150 tons of bleached pulp per day.

Construction of No. 20

Planning for the installation of No. 20 began in July of 1956 under the direction of B. J. Sledge, Champion's chief engineer for the No. 20 project. (Initial drawings for No. 20 were started by Champion in 1953. In 1956 they were turned over to Beloit.) Among the site preparation work there was the interesting aspect of tearing down an old and historic building where for more than 50 years chestnut wood had been processed to remove tannin before the wood was pulped.

Preliminary clearing and grading work began in July of 1956. Sewer and other underground piping was completed early in 1957. Steel erection for the new machine building began in November of 1957. This work was completed in May of 1958. Sole plates for No. 20 machine were laid in July of 1958. Machine crew training began in December of 1958. The first paper came off the machine on February 17, 1959. Saleable paper was made within 24 hours. No. 20 is housed in a new two story high building, 515 feet long with 124,000 square feet of floor space.

Impact

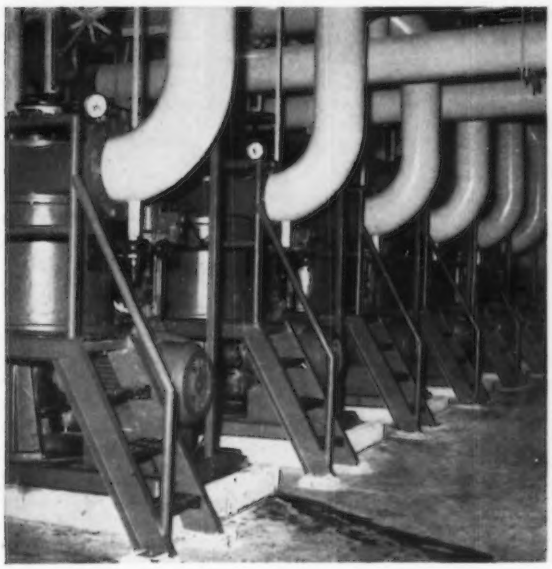
Depending on grade produced, No. 20 is expected to add 200 to 300 tons a day to the over-all production at the Canton mill. This raises the Division's over-all paper and paperboard capacity to about 980 tons daily. As a result pulp production will also be increased and the mill will use about 350 to 400 cords of additional pulp wood a day. Over 2,150 cords are now used daily. About 90 per cent of this wood is purchased by Champion from owners of small wood lots in the surrounding area. Concentrating No. 20's operations on its specialties of bond, tablet and mimeograph grades is expected to increase the efficiency of other Champion machines due to such factors as deckle, longer runs and fewer grade changes on the paper machines. According to company spokesmen, this increased efficiency plus the new tonnage capacity to be realized from No. 20 machine, will enable Champion to produce between 90,000 and 100,000 tons annually above present production, this will increase Champion's company-wide annual output of paper and paperboard to 700,000 tons.

Stock Preparation

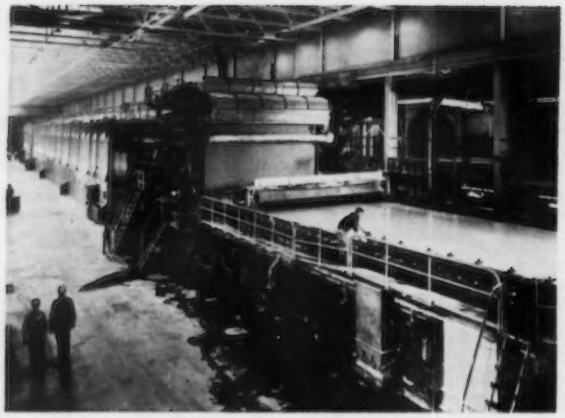
Champion will use pine kraft NSSC hardwood and bleached kraft hardwood on No. 20. The stock preparation system consists of three saveall thickeners of Champion's design utilizing drums 6 ft. in dia. by 12 ft. in length and having a capacity of 200 tons per day; three 20-foot diameter, 180-ton capacity, 25-minute cycle Hydrapulpers; a 16-ton capacity storage chest; ten Emerson 4K, 400 h.p. 400 r.p.m. jordans and a 12-ton capacity tile lined machine stock chest. This equipment is housed in a new four story high, 50,000 square foot floor area stock preparation building. This building also contains the necessary electrical control centers for stock preparation equipment and it provides storage space for wet lap pulp.

The No. 20 stock preparation system consists of what could be considered two entirely separate stock preparation systems, one for pine and the other for hardwood pulp. After individual chemical addition and jordaning, the two pulps are combined with an automatic metering system immediately before the machine chest. This partially automated batch system includes the latest in stock preparation devices such as automatic metering of chemicals into the Hydrapulpers, automatic consistency regulation with Foxboro and DeZurik equipment, and an automatic stock proportioning system as the two furnishes are combined immediately before entering the machine storage chest. This final proportioning system uses Foxboro automatic magnetic flow meters. There are, as indicated, three Hydrapulpers in this system. Two of these are used for the pine and hardwood pulps and the third is used for broke. The latter is fed into the machine storage chest at the same point where the two virgin pulps are added. Consistency of the pine stock is usually maintained between seven and eight percent and the hardwood kraft is kept close to seven per cent consistency.

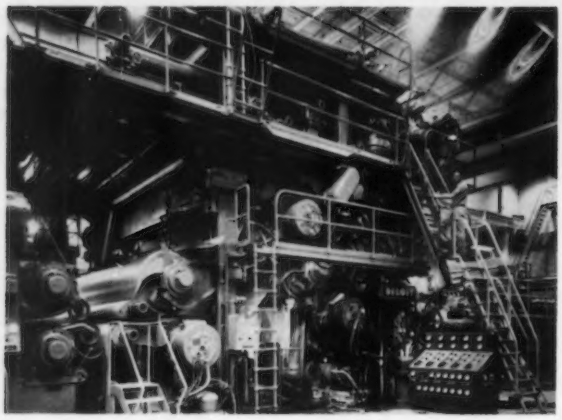
Selectifiers, following the Centricleaners, screen stock just before entry into the headbox.



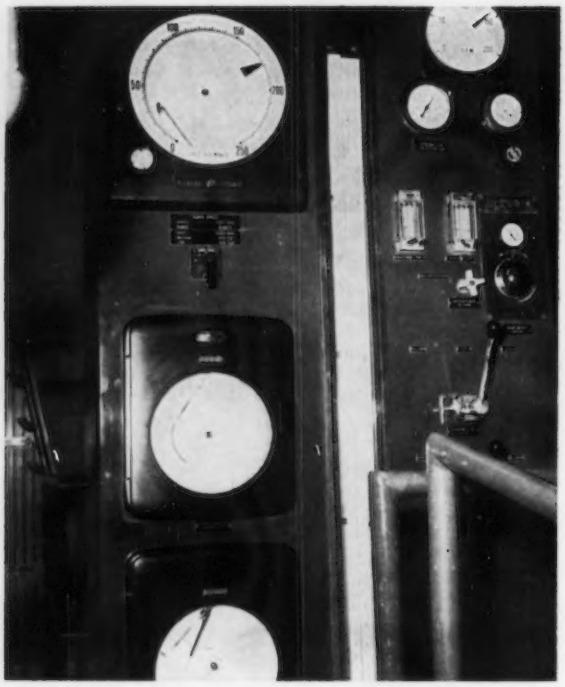
Foam skimming weir prevents foam accumulations as stock overflows from couch pit to wire pit.



Size of No. 20 paper machine is illustrated by this view. Wire width is 246 inches. Design speed is 2000 f.p.m.



Press section is 27½ feet high, includes three-roll inclined press, straight-through third suction press and smoothing press.



Instrumentation for paper speed, headbox pressure and consistency. No. 20 is equipped with numerous automatic control instruments.

No. 20 machine will, of course, draw its pulp from the Division's pulp mills. Capacity of these pulp mills has been increased gradually by Champion in segments. This program started back in 1950, and when No. 20 machine started up, the pulp mills were therefore immediately able to handle the increased demand. The new stock preparation building includes a wet lap storage area, designed as a precautionary matter in case the pulp mills would at any time be temporarily unable to deliver pulp to the machine.

Stock from the machine chest is subjected to final refining with three Emerson tickler jordans before it enters the basis weight head tank which is part of the paper machine itself. To achieve a constant head on the consistency regulator valve just ahead of a Centri-cleaner system, the mill has installed a small two foot by four foot tank, referred to as the basis weight head tank. From the basis weight head tank the stock is introduced to the primary Centri-cleaner system through a Worthington 20 LA type pump with 1,250-h.p. drive unit.

The Bauer stock cleaning system consists of twenty 650 g.p.m. primary cleaners, six 650 g.p.m. secondaries and two 500 g.p.m. tertiaries plus one single cleaner. Accepted stock from the primary cleaners passes through a bank of six Shartle Selectifier screens and then into the pressure head box.

Wet End

The No. 20 machine head box is of the latest air pressure design, incorporating a multiple pipe dual impingement distributor. The box contains five variable speed rectifier rolls and is equipped with an adjustable straight-lip slice. Stock level in the head box is automatically controlled by recirculation of stock to the primary Centri-cleaner pump. Pressure is provided by a Nash L-3 compressor.

Head box consistency has so far been maintained between 0.5 and 0.8 per cent, depending on grades and weight. Typical freenesses cited for 16 pound bond range between 320 and 325 Canadian freeness. Twenty-pound bond freeness ranges between 350 and 375 and this is reportedly the same freeness for 20-pound mimeo and 20 pound tablet. Instead of a fan pump, the machine uses the primary, Centri-cleaner pump. With the exception of occasional defoaming agents no other chemicals are added to the system except the conventional points in the stock perparation system.

Stock from the headbox is delivered onto the 246 inch fourdrinier, which is of the removable shaking type. Major components of the fourdrinier are as follows: 36-inch diameter breast roll with air motor lowering device; 27 thirteen-inch diameter table rolls; 7 stainless steel suction boxes with provision for oscillation; a 30-inch diameter dandy roll; seven wire return rolls; two position wire tension rolls and automatic wire tension control mechanism. The 42-inch diameter couch roll has both high and low vacuum suction boxes.

The machine's wire pit includes an interesting foam removal device, called a "foam removal skimming

weir." This is a baffle type arrangement which skims off foam from the water overflowing from the couch pit to the wire pit and thus prevents foam accumulations. Another attempt to keep air and foam in the wire pit to a minimum is found in the fact that the saveall pan downspouts discharge below the level of the wire pit. They are equipped with an automatic level control device which maintains the saveall pan level below the wire constant, to prevent air from rushing into the wire pit. The wire pit, as well as the couch and press pits are of tile construction.

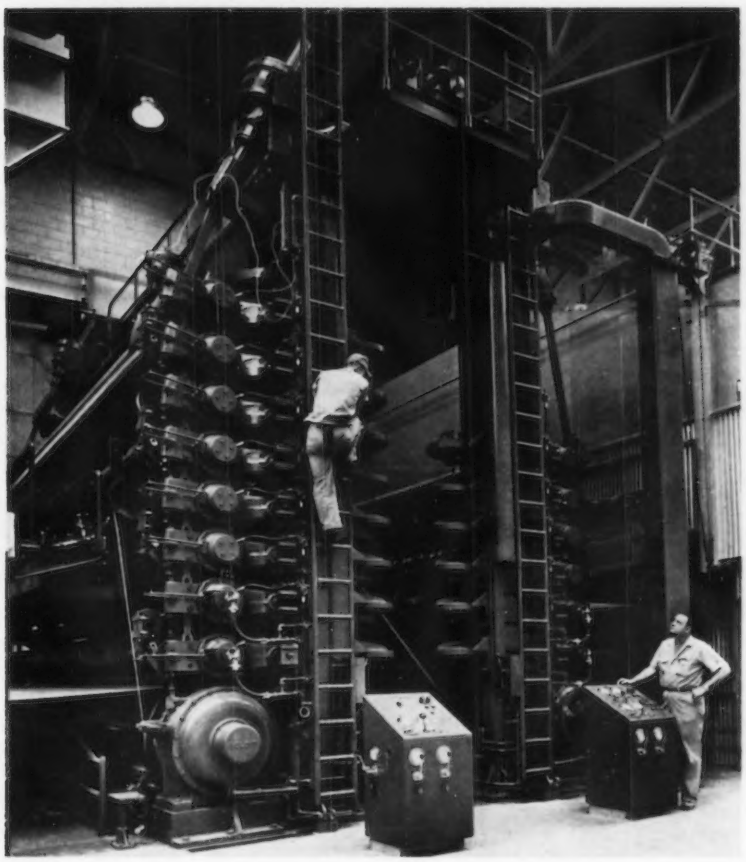
Press Section

The suction pick-up press is of the inclined three-roll type, followed by a straight-through third suction press and smoothing press. The first three presses are provided with conventional lubricating showers, suction box, felt conditioner and necessary felt cleaning equipment required for the operation of this type of an installation. The press section towers 27½ feet above the operating floor. The machine is equipped with a 30-inch diameter bronze shell suction pick-up roll. The felt turn roll, which is also a suction roll, is 20 inches in diameter.

The first press suction roll is 44 inches by 268-inch face. The center roll is Microrok covered and equipped with oscillating Lodding doctors. It is 47 inches in diameter. The felt cleaning press rolls consist of a wringer suction roll, 30 inches in diameter and the second wringer roll is 36 inches in diameter, made of hard rubber. Completing the inclined press there is a second suction press roll, 44 inches in diameter.

The third press is a straight press which can also be operated as an air bleed press. The bottom suction roll, is 44 inches in diameter and the top roll is a 47-inch diameter Microrok roll equipped with a doctor. The smoothing press bottom roll is a 35-inch Microrok roll and the top smoothing press roll is a hard rubber, 36-inch diameter roll. The top and bottom smoothing press rolls are both equipped with doctors.

Calender stacks are 25½ feet high. First stack contains seven rolls, the second contains nine rolls. Both have 36-inch diameter king rolls and are equipped with oscillating doctors and air cooling systems.



Dryer Section

All dryer sections are totally enclosed by machine hoods. The 66 paper dryers, six Feeneys and eight return felt dryers are divided into four sections. The size press is located between the third and fourth sections. The size press is not included in the machine hood which means that there are two hoods, separated by the size press.

The dryers are all five feet in diameter and are designed for 125 pounds of steam pressure. The condensate removal system is of the forced vapor circulation type. The hoods are made of aluminum insulated and corrugated panel sections. They are furnished with heated make-up air in the basement and by means of exhaust temperature control, the air is recirculated to eliminate heat loss from the system. The air system is equipped with automatic controls to maintain the air balance inside the hoods. As humidity rises the controls automatically disperse excess moisture to the atmosphere. Temperature inside the first hood is maintained at an average of 160°F. and the temperature inside the second hood is approximately 130°F. Relative humidity averages approximately 40 per cent.

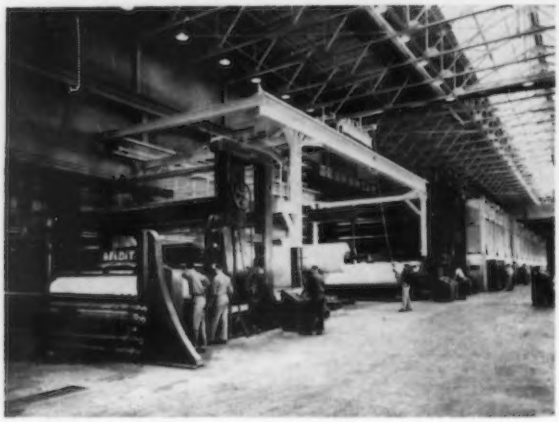
No. 20's size press is of standard vertical design. The top roll is a 36-inch diameter hard rubber roll of approximately 20 P and J hardness. The bottom Microrok roll is 35 inches in diameter. No nip pressure data is available as yet. PAPER TRADE JOURNAL was told that the mill does not contemplate running pigmented starch on No. 20 machine. To a question during the course of a press conference held in conjunction with the commissioning ceremony of No. 20 machine, A. M. Fairbrother, vice-president and Carolina division manager, said that a vertical size press was chosen (rather than a horizontal size press) because "At the time when the machine was designed the horizontal size press was not as accepted as it is today. We stuck to convention in choosing the vertical size press," Mr. Fairbrother said.

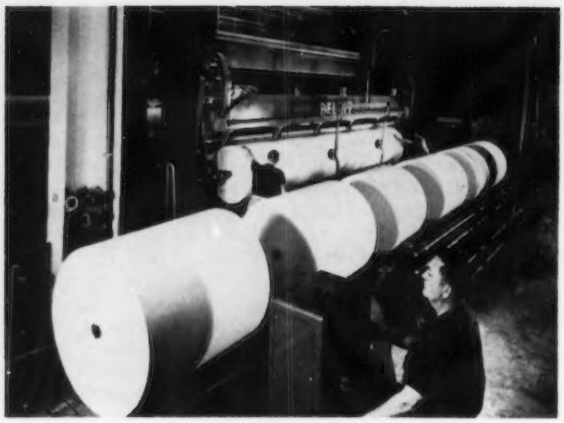
The size press is equipped with an automatic web break mechanism which automatically shuts off the starch size and permits water to run into the press when a break occurs on the machine.

Dry End

The machine's two 25½ foot high open-side calender stacks are provided with nip-relieving systems, electrically operated roll lifts, oscil-

Rewinder is in line with paper machine and reels are transferred to it by crane. It is designed for speeds to 6000 f.p.m.





Conveyors and a unique roll wrapping and weighing system are part of the new installation.

lating Lodding doctors and air cooling systems. Both calender stacks have 36-inch diameter king rolls. The first stack contains seven rolls and the second stack contains nine rolls.

The machine reel is a heavy duty Beloit constant speed drum type with primary and secondary air loaded reel arms for continuous reeling at high speeds. The 36-inch diameter drum is designed to handle 88-inch-diameter rolls. The reel is provided with a full width braking system.

The heavy duty double drum winder unit is designed for speeds of 6,000 feet per minute. Each drum is driven by a 250 h.p. d.c. motor. An oscillating unwind stand, individually driven sheet slitters and automatic shaft removal equipment are provided on the unit. Complete conveyors, necessary transfers, and a unique roll wrapping and weighing system have also been installed with the winder.

Broke System

The machine is provided with a broke system which consists of three Shartle machine-width Duo-pulpers. Two are located under the calender stacks. One serves the last dryer section and the first calender stack and the other serves the second calender stack, the reel and the winder. The third Duo-pulper is located beneath the size press. Each of these repulpers is provided with automatic consistency control, level control and agitator equipment. Repulped broke from these Duo-pulpers is pumped back to the broke chest which is part of the stock preparation system. The stock preparation system also includes a Hydrapulper, reserved mainly for repulping broke from such miscellaneous sources as the finishing department, and so forth.

The Drive

No. 20's prime mover turbine drives the differential type mechanical line shaft and connects with the wire return roll, first and third press rolls, the smoothing press, four dryer sections, the size press, the calender stacks and the reel. In-line generators provide electric power for the helper drives on the couch wire return rolls, second press wringer rolls, pick-up rolls, felt turning suction rolls, top size press rolls and various tension rolls. Each differential drive has P.I.V. speed control with air operated clutch connections between the differential and the transfer gear cases on the in-drive. Electric inching drives are provided for the calenders and the reel.

The steam turbine is a 2,400 h.p. multi-vane, multi-stage non-condensing, 400 pound per square inch inlet pressure unit. This unit has a ten-to-one speed range. Electric power connections from the mill system, as well as block load tie with the Carolina Power and Light Co. were installed for this machine and auxiliary equipment.

Instrumentation

No. 20 paper machine is a highly automated machine, equipped with numerous automatic control instruments. Only the highlights of the machine's instrumentation are presented here. The dryer system includes temperature and differential pressure controls by Foxboro. The condensate control system is by Ross-Midwest Fulton. All fourdrinier and press section shower water is temperature controlled, enabling operators to maintain shower water temperatures accurately in any desired range from 50° to 150° F. PAPER TRADE JOURNAL was told that the mill maintains shower water between 80° and 90° F. for the average bond run. Flat box vacuum is automatically controled by Foxboro. All oscillating doctors are automatically controlled.

Other automatic controls include: relative humidity under the hood; Duo-pulper consistency and liquid level; liquid level in the couch and press pits and consistency in the press pit. Instrumentation is also included at the pick-up roll in the press section and there are automatic felt tension controls and automatic felt drying air temperature controls.

No. 20 is not equipped with automatic basis weight indicating or controlling devices. PAPER TRADE JOURNAL was told that Champion is now investigating basis weight control instrumentation at its Carolina Division and that there are tentative plans to add such equipment to No. 20 machine at a later date. It was also indicated that the mill feels confident of the accuracy and excellent design of its drying system, to a point that it was not deemed necessary to install moisture control equipment.

White Water System

From all indications, a truly tremendous amount of work and thought has been given the design of the machine's white water system (as, in fact, has been given to the entire machine and its auxiliary equipment.) The heart of the white water system is a 40-foot diameter by 30-foot high 30,000 gallon capacity white water collection tank. This tank not only handles the usual excess white water but also any chest dumps, thickener over-flows or excess slushed broke. White water from this collecting chest is used as white water make-up water to the system,

in thickeners and in the pulpers in stock preparation and broke repulping.

One interesting aspect of the machine's white water system is the fact that the thickeners serve as savealls. Excess white water not used at the machine or in the stock preparation system is pumped back to the pulp mill, which again demonstrates the integrated mill's advantage in handling machine white water over its non-integrated counterpart.

PAPER TRADE JOURNAL learned one highly significant fact about the machine's white water system: The white water which collects in the press section is directed into the white water system which means, in effect, that this machine's white water system is a genuinely closed one. The press section white water is passed through a series of Kinney screens and this precaution has eliminated possible felt hair problems.

Miscellaneous

A new shipping building and finishing room area, including office space, was erected in conjunction with the new No. 20 machine building. Storage area and loading facilities with space for handling ten railroad cars inside the building were part of this project. The project included an additional paper finishing area consisting of 43,000 square feet of floor space.

A new mill clay handling system was installed at the time when No. 20 machine was erected. This clay system includes two 25 foot diameter by 50 foot high clay make-up tanks and perhaps one unusual aspect here is that the mill has found it unnecessary to provide agitation equipment for these tanks, despite their large size. One reason for this is the fact that it is a virtually continuous system with almost constant make-up and slurry draw-off. The mill now unloads clay from boxcars but a switch to hopper unloading is expected very soon.

Although no paper or board coating is presently being done at Champion's Carolina Division, PAPER TRADE JOURNAL learned that two Champion coaters are soon to be installed for the mill's No. 13 paper machine. These coaters are being supplied by Patton Manufacturing Co.

No. 20 machine presently manufactures grades in the sub. 13 to 24 (17 x 22—500) weight ranges. Company officials declined to indicate the exact investment represented by No. 20 paper machine but they provided Champion's total capital fund outlay of twenty-three million, four hundred thousand dollars for all mill improvements in all of Champion's mills last year.

Karl R. Bendetsen, vice-president, pulp and paper manufacturing, discussed the utilization of waste wood during the press conference which was a part of the No. 20 machine commissioning ceremonies. Mr. Bendetsen said that Champion has in the past five years pursued the utilization of what was at one time sawmill waste, quite successfully in its Texas operation. Progress made there has been successful, representing an equivalent of 100,000 acres of forest. As a result of the experience gained in its Texas operations, Champion is now readying plans for a similar program in its Carolina Division. The Carolina Division pulp mills soon expect chip shipments from neighboring sawmills.

As to the matter of selling the tonnage now being produced by No. 20 machine, H. W. Suter, Champion's vice-president for paper sales, told the press conference that market research and similar sales investigation and projects began more than a year before the machine's start-up. "We feel confident about our ability to sell No. 20's production, especially in view of the prevailing stronger market," Mr. Suter said.

TRAINING CREWS FOR NO. 20

In April, 1958, studies began on the development of a training program for No. 20. The lack of a sister machine to use in readying the crews and the fact that much of the equipment was new and unlike that on other machines in the mill were primary problems that had to be coped with. So a training plan was outlined by training section personnel working with No. 20 management personnel. And in mid-December of 1958 machine shift supervisors and beater room supervisors began study of No. 20 prints and familiarizing themselves with the equipment.

During the same month, the machine supervisors spent two days at Champion's Texas Division to observe wire change and operation of press section on No. 22 machine there. A few weeks later, No. 20 machine tenders, backtenders, and third, fourth, and fifth hands, along with stock preparation men, were released full-time to training for No. 20 start-up.

In the meantime, B. J. Sledge, chief design engineer, was completing an "Engineering, Equipment, and Design" manual, complete with drawings, for use in acquainting operating crews with pertinent information about equipment. This manual was also used in classroom instruction by engineers, instrument technicians, and No. 20 management team.

The No. 20 technologist, working with the machine manager and assistant, also wrote "standard operating procedures" and "job breakdown" manuals. Training section personnel worked closely with both of these groups in getting material multilithed, drawings reproduced, 35 m.m. slides reproduced, and the manual collated in time for distribution at specified classroom periods.

During the period between December 19, 1958, and February 1, 1959, all machine and stock preparation men were given a ten-hour course in "How to Instruct" by training section staff members. This was done in small groups of eight or ten. In these classroom periods each man was given an opportunity to demonstrate his ability of instructing by using the "4-step" method: Prepare—Present—Try Out—and Follow up.

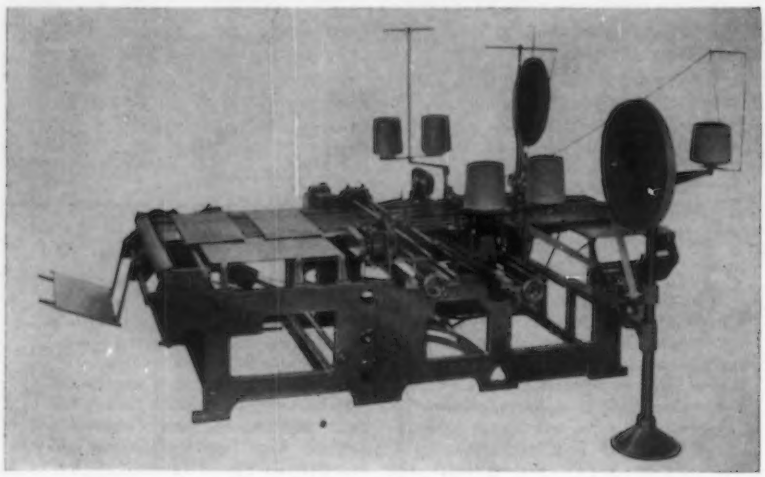
Manuals were completed and lesson plans were prepared by those who were to instruct. Much of the classroom instruction was done by the machine manager and his assistant, the four shift supervisors, and the stock preparation foreman. In addition, the Carolina Division engineering group (mechanical, construction, and electrical) provided instructions for the purpose of acquainting machine crews with information about the equipment and its operation. Process controls, inspection, utilities, safety, and instrument personnel also participated in the training of No. 20 personnel. Two Beloit Iron Works representatives also conducted classroom and on-the-job instruction.

In late January classroom instruction was begun for the entire group assigned to No. 20 machine. These meetings were held in a special classroom with tables arranged so that each man could view visual aids and keep his manuals and notes before him.

Key operating personnel visited similar mills in the South and observed wire changing and felt changing techniques.

Classroom instruction was completed early in February. Machine crews then spent their days in the No. 20 machine area assisting with the preparation of the machine for start-up.

PJT NEW EQUIPMENT & SUPPLIES



Multi-Wall Bags Are "Tape-Over" Sewn

Potdevin's latest machine, Model S3, is equipped to do "tape-over" sewing; i.e, the selvage is pasted over the stitches rather than having the stitches go through the selvage.

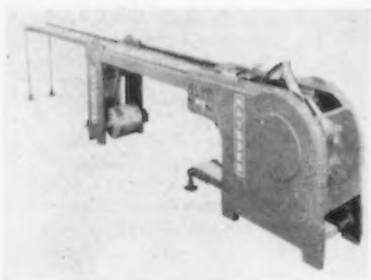
The machine will sew either one or both ends of multi-wall bag tubes in one operation. In addition, it provides all the sewing techniques for sewn open mouth, sewn valve, regular sewing (sewing through selvage). Tube sizes accommodated range from 20-inch to 54-inch tube lengths and 10-inch to 26-inch face widths.

By operating with right and left hand sewing heads, both ends of the double-end sewn bag tubes are sewn at the same time. One of the sewing heads is adjustable to provide for tubes of various lengths, or for sewing only one end of sewn open-mouth.

Since stitching is continuous, each machine is equipped with a pair of engineered cutters, revolving knives which are actuated by each passing tube, for separating the selvage between the bags.

Needles are air-cooled. A P.I.V. drive between sewing heads and feeder conveyor chain assures precise speed timing of the tube with that of the stitch. This is especially important when sewing light flabby tubes. For additional information write Potdevin Machine Co., 285 North Street, Teterboro, N. J.

Packager Wraps Non-Uniform Products



The Hayssen Manufacturing Co., Sheboygan, Wis., has recently introduced the RT Packaging Machine which is designed, according to a company spokesman, to provide automatic packaging of non-uniform products and goods with any heat sealing material.

As the material is pulled toward the back sealer, the film is naturally folded over the product. It passes under a back sealing iron. To adjust to height of package, a finger wheel raises or lowers the back sealing bars. The product then moves on to the end sealing bars which are positioned on a constantly rotating drum. The jaws seal the bottom of the first package and top of the second package in one operation. The package is held in the sealing jaws and follows the drum to the discharge conveyor where it is released. The product never comes in contact with machine parts.

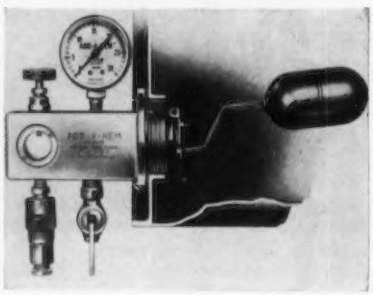
Upon completing the sealing cycle, the jaws accumulate in an open position along the rotating drum. Upon a signal from the electric eye control or the mechanical timing device, a set of sealing jaws is released. As the drum moves, the upper jaw is cammed down over the lower jaw, sealing and cutting at the same time.

The electric eye length registration can be used with a printed target on the wrapping material or on the product itself, thus allowing for various size products. Width adjustment is made by changing width of the roll material.

Proportioner Meters and Feeds Direct from Drums

A non-electric, direct-from-drum proportioner named Pour-Portioner is announced by the Sterling E. Norcross Co., 19 Osborne Street, Bloomfield, N. J.

Fitting into the 2-inch head bung



of all steel shipping drums through 55 gallons, this pumpless proportioner directly meters, either separately or simultaneously, light to viscous chemicals at drops per hour through sight glass, or batch pours through built-in faucet provision. It operates by gravity feed with light liquids, or by available vacuum, pump suction or compressed air for very viscous flow. Automatic "empty" indicator gauge and air-tight flow shutoff are provided. Accessory fittings permit remote drum location for many applications.

(Continued on page 54)

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Titanium Dioxide

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In paper boxboard for cartons, Unitane O-110 Titanium Dioxide provides the whiteness that builds sales for products of all kinds. The attraction of added brightness and the look of extra cleanness do the trick! Ask your Cyanamid Pigments representative about Unitane O-110.

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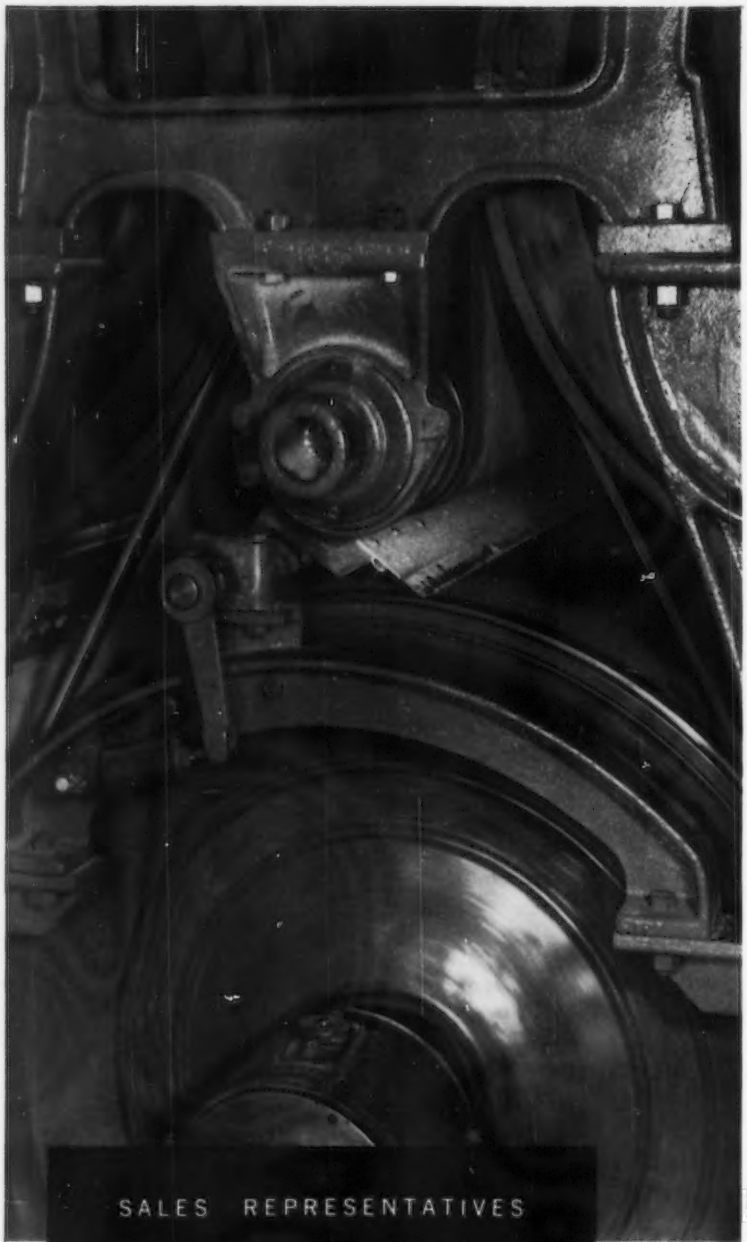

Superior Doctoring calls for Quality Blades

That is why it's so important to buy doctor blades from Lodding. Here, the manufacture of blades is big business. Craftsmen follow each of the many steps of manufacturing with the precise skill acquired only from extensive, specialized experience.

Lodding Doctor Blades are precision tools. They are made with the same degree of accuracy that goes into the manufacture of instruments for medical doctors. That is why each blade carries an unqualified guarantee of materials, workmanship and performance.

Lodding Blades are available in any size, in the material best suited for any paper machine roll application . . . K MONEL . . . ALLOY STEEL . . . STAINLESS STEEL . . . PHOSPHOR BRONZE . . . LAMINATED PLASTIC . . . ABRASIVE.

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Efficient doctoring comes only from quality blades, Lodding Blades.

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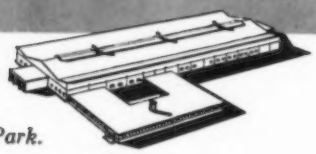
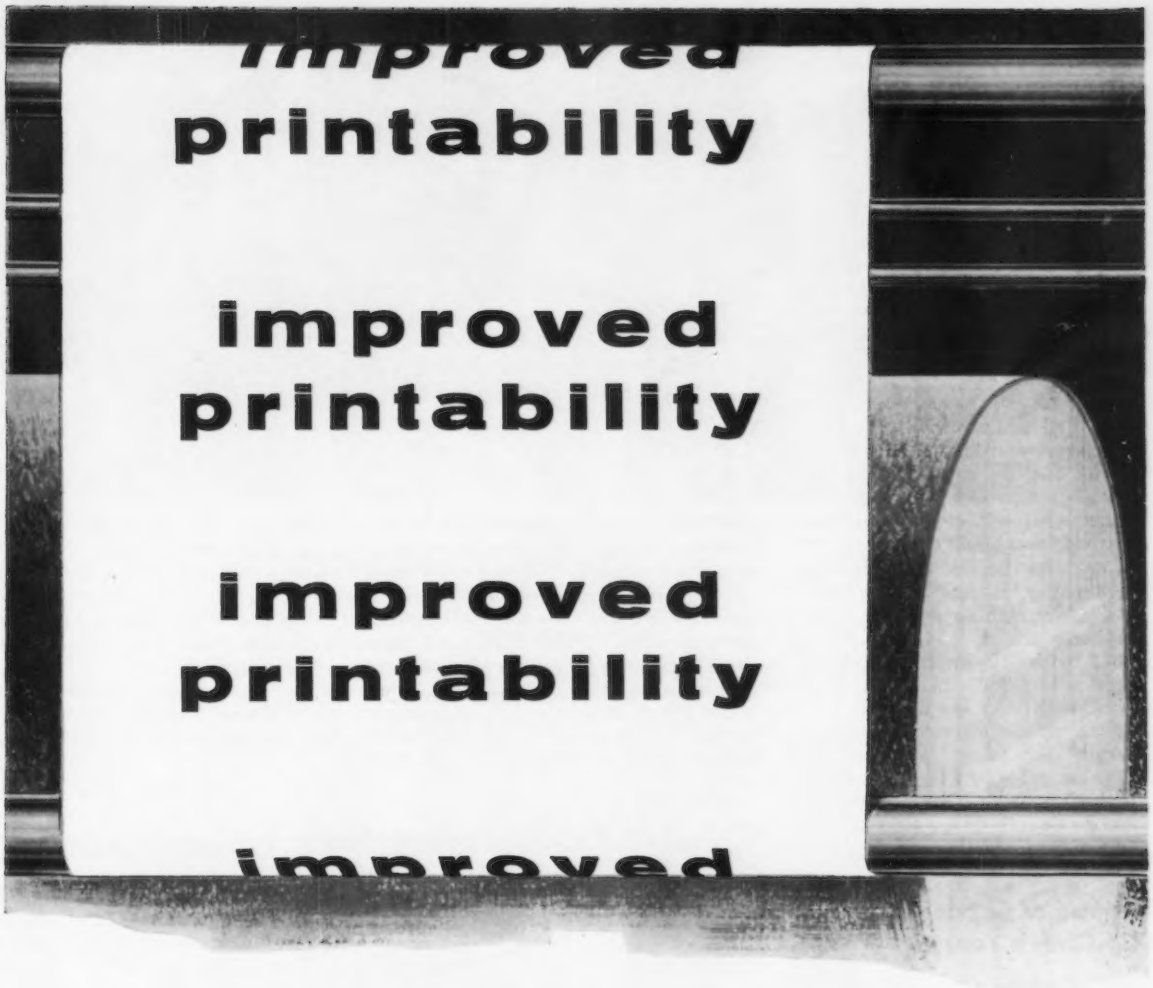


We welcome your inspection of our new plant located in Worcester's Auburn Industrial Park.



with Gelva C-3 and C-5 copolymer resins

When used as a surface size, GELVA C-3 and C-5 polyvinyl acetate copolymer resins impart a smooth finish to paper. Ink receptivity is improved. Contrast is sharply defined. Furthermore, when deposited from ammoniacal solution, the resin imparts to the sized sheet a more water resistant film. Improvements in wet and dry tensile and Mullen are also obtainable. The resins are alkali soluble. Broke recovery is quick and easy.

Write for full technical information on GELVA C-3 and C-5. Shawinigan Resins Corporation, Department 6319, Springfield 1, Massachusetts.

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PROPERTIES

Form—Fine beads (0.2—1.0 mm. diameter)
Transparency—Excellent
Light Stability—Good
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	Softening Point	Maximum Flowable Solution
C-5V-10	123°C	20%
C-3V-10	123°C	35%
C-5V-16R	134°C	20%
C-3V-20	155°C	25%
C-3V-30	180°C	20%

Softening Point: Ball and Ring Method
Solution: Ammoniacal

GELVA® *polyvinyl acetate resins by* **SHAWINIGAN RESINS®**

NEW EQUIPMENT

(Continued from page 50)

Variable-Speed Pulley Affords 3 to 1 Ratios

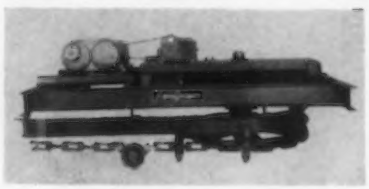
A new variable speed pulley is now available to provide ratios up to 3 to 1 at 3⅓ h.p., 1150 r.p.m., or 5 h.p. at 1750 r.p.m. Easily installed on old or new equipment, the pulley changes speed instantly with just finger-tip pressure while machine is in motion.

Both pulley faces move simultaneously and equally to give constant belt alignment—each side independently actuated by its own spring. Curved pulley faces maintain full contact with belt sides at all times to provide maximum efficiency.

Known as the No. 3050 Variable-Speed pulley, it uses a 1 13/16-inch top width variable speed belt. Standard bores are 1, 1⅛, 1¼ or 1⅜ inches with 3½-inch bore length. Motor travel for full range is 4⅝ inches with 9.53 in. maximum and 3.17 in. minimum pitch diameters. Overall dimensions are 10 5/16 inches long by 10 inches O. D. For full information, contact Lovejoy Flexible Coupling Co., 4999 W. Lake St., Chicago 44, Ill.

Method of Setting Slip-Clutch Tension

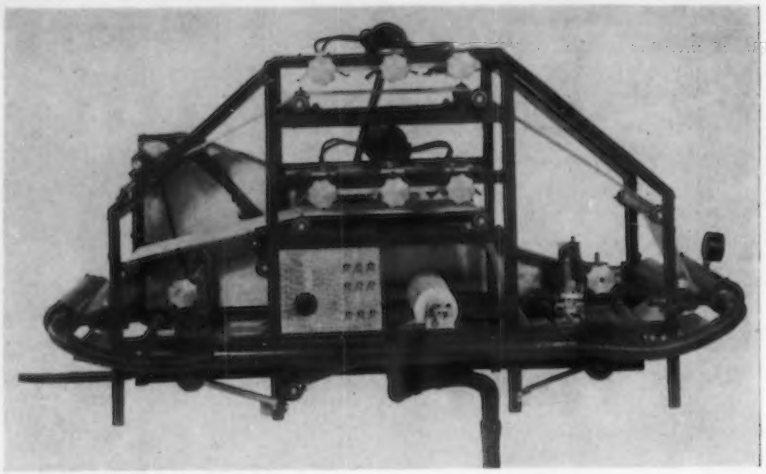
During operation, a Dillon Dynamometer takes the place of one or two links of chain on the conveyor. The slip-clutch is then accurately set



to the predetermined pounds of tension shown on the Dynamometer. At test completion, a come-along is used to remove the instrument and free it for other purposes.

The Dynamometers are available in 13 capacities from 500 to 100,000 pounds—with either five- or ten-inch dials. The instruments are furnished complete with red maximum pointers, shackles, and safety glass crystal. They are certified accurate, and unconditionally guaranteed.

For technical data, write W. C. Dillon & Co., Inc., 14620 Keswick Street, Van Nuys, Cal.



LABORATORY BENCH-TYPE AIR KNIFE COATER permits the application of coatings to both sides of a paper web, up to nine inches in width. This unit was designed primarily to permit the sensitizing of a web with a diazotype solution, and treatment of the other side with an anti-curl solution. Other aqueous systems may also be applied with this unit. The coater is four feet long, operates with 220 Volt, AC, 60-cycle current. It has a variable speed drive. Drying is by means of three radiant driers, each with its own switch, in each of the two passes. These driers may be rotated, when necessary to avoid overheating the web. A compact rotary blower supplies the two air knives, and a gauge is provided to show air pressure. Available from S. C. Slifkin, 11616 Amherst Ct., Plymouth, Mich.

Crawler Tractors Are Now Turbocharged

The Caterpillar Tractor Co., Peoria, Ill., announces the turbocharging of two former models in its line of crawler tractors. They are the D7 and D8, the latter now available both in the torque converter and direct drive units.

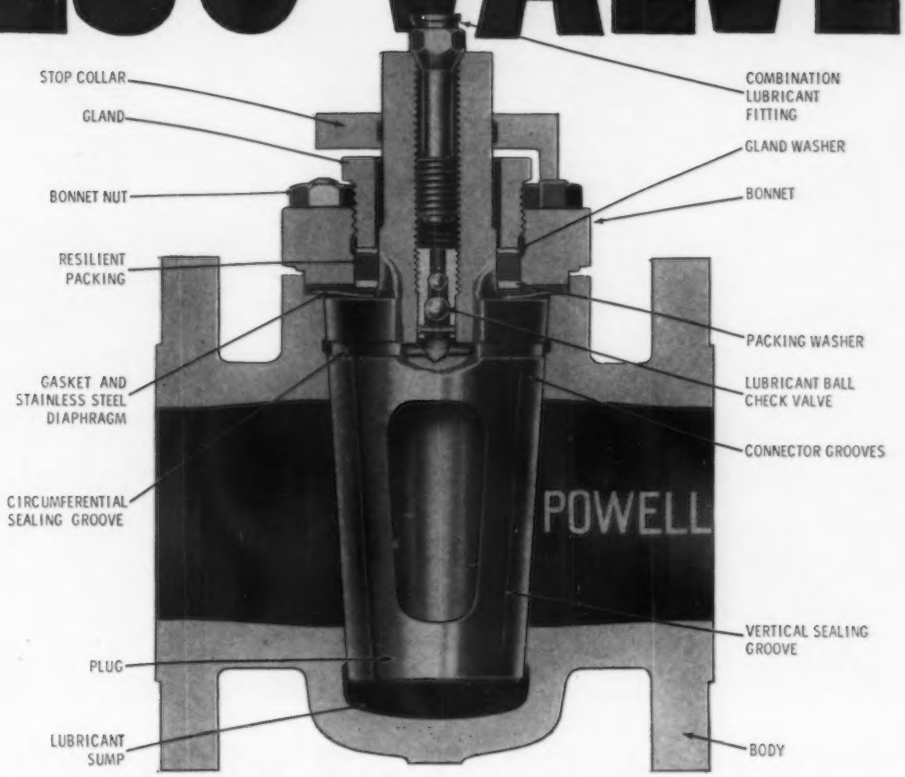
Engine horsepower rating of the D8 Series H Tractor at the flywheel is 225. Drawbar horsepower of the direct drive model is 180. The Series H. units are powered by four-cycle, valve-in-head, turbocharged, six-cylinder diesels, having a bore and stroke of 5¾-inches by 8-inches, with a piston displacement of 1246 cubic inches. The engine is governed to 1200 r.p.m. at full load. It has seven main bearings, made of aluminum alloy. Dry type air cleaner is standard. Decelerator pedal is standard on the torque converter unit and is offered as optional equipment on the direct drive. Both models feature pressure lubrication of the power train with completely filtered oil. Total track ground contact area is rated at 5505 sq. in.

The gauge is 84 inches, with both having an over-all length of 17 feet. Their height, exclusive of exhaust and air cleaner, is eight feet and their width is slightly over nine feet. Ground clearance is 20 inches. The direct drive model has an operating weight of 47,102 pounds; the torque converter unit has an operating weight of 47,875 pounds.

The D7 series D tractor develops

140 flywheel horsepower, with drawbar horsepower rated at 112. It utilizes the dry-type air cleaner and features lifetime lubricated rollers, carrier rollers, and idlers, with the floating ring seal. The power train lubrication system has full-flow filtration, with pressure-lubricated bearings. Gears operate under a continuous spray of oil. In seat starting is available.

POWELL
LUBRICATED PLUG VALVES



Sectional view Powell Screwed Gland Lubricated Plug Valve.

Like all Powell Valves, Powell Lubricated Plug Valves are superior in their field . . . and have many advantages over other conventional types of Valves.

- Simple design: only three basic parts—Body, Bonnet, Plug.
- Quick, complete shut-off—a quarter turn will close or open the valve.
- Tapered Plug assures positive seating.
- Machined surfaces of plug and body are not exposed in the open position. Any media adhering to the plug when in the closed position is removed when plug is rotated.
- Cavity-free straight passage assures streamlined flow in either direction. Scale and sediment cannot collect.

Powell Lubricated Plug Valves are available in sizes ½" through 16", depending on the type required—Semi-steel 175 and 200 pounds WOG;—Carbon Steel ASA 150 and 300 pounds.

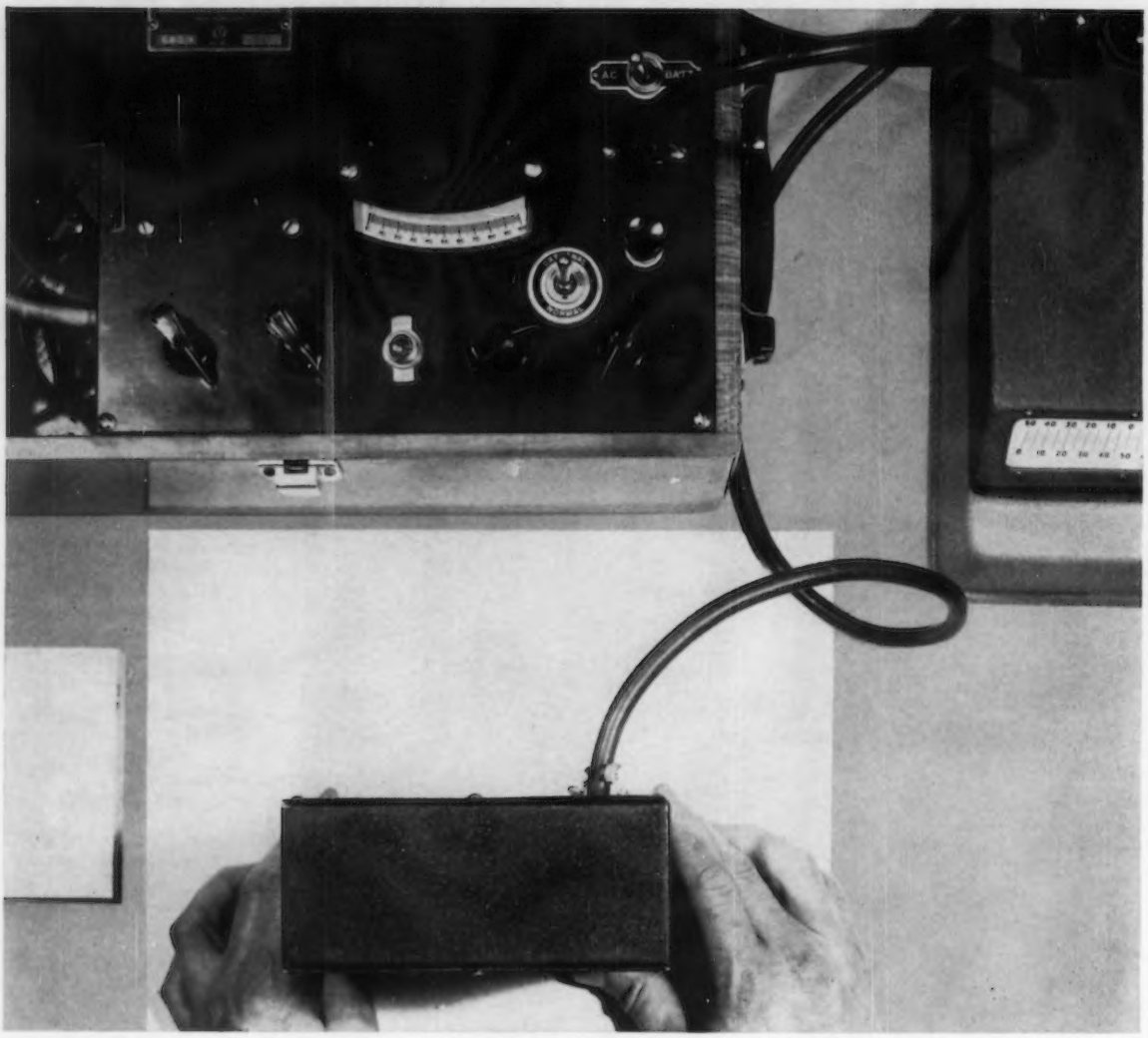
Powell can also furnish Lubricated Plug Valves in other alloys on special order.

For all your valve needs, make it a policy to consult your local Powell Distributor—or write directly to us.

THE WM. POWELL COMPANY

Dependable Valves Since 1846 • Cincinnati 22, Ohio

DOW | LATEX



PAPERBOARD COATING GLOSS JUMPS

65% . . . Dow Latex 512-L solves coatings problem

Problem: How to step up coating gloss and gloss ink holdout on paperboard for packaging? A company that recently asked this question got a quick answer—Dow Latex 512-L. They replaced 50% of the binder in their regular coating with Dow Latex 512-L, applied it with regular machine coaters. The result? Greatly improved gloss ink holdout, and an eye-catching 65% increase in coating gloss. Here are the details:

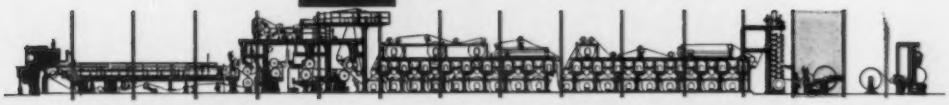
	Photovolt 60 Gloss M. D.	C. D.	Application Solids
Coating containing 50% latex	26	23	51%
Former coating	16	13	47%

Both the machine direction and the cross direction gloss increased by 10 points. And the use of latex improved gloss ink holdout, allowed higher coating weights, reduced drying time, improved flexibility and increased production! And Dow Latex 512-L is economical!

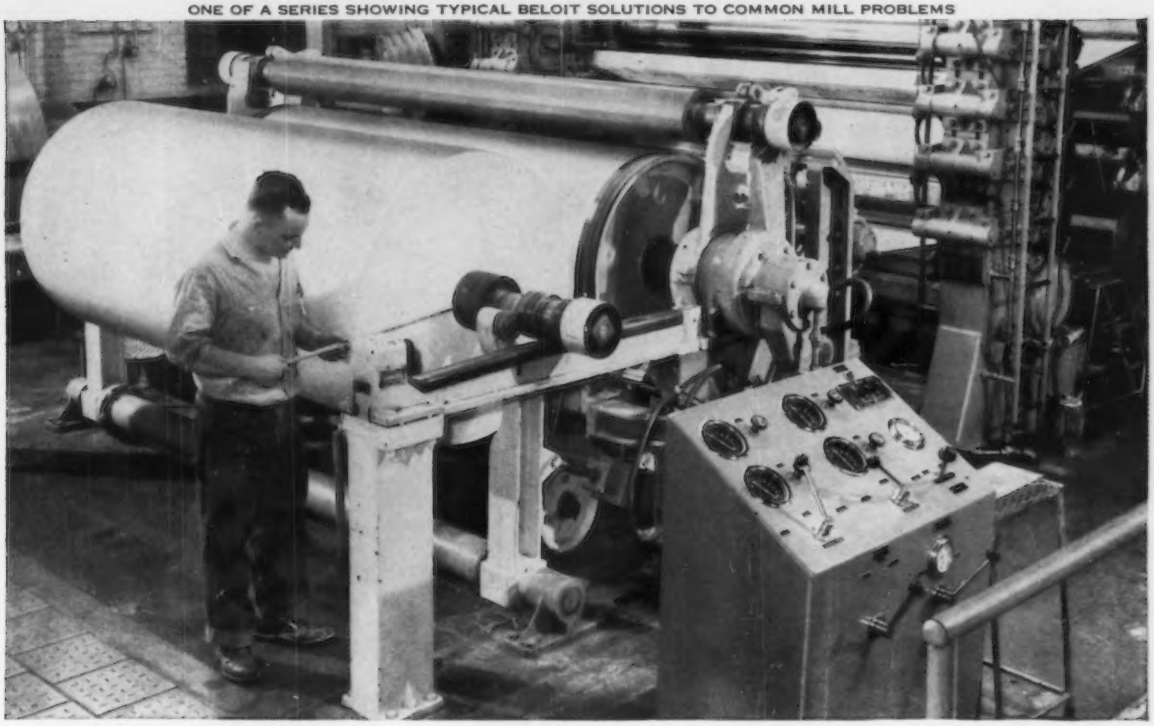
Dow Latex 512-L can give your paperboard and paper these sales advantages. Many leading paper and paperboard manufacturers have already discovered the benefits of Dow Latex 512-L. For technical information contact the nearest Dow sales office or THE DOW CHEMICAL COMPANY, Dept. 2320DP5-11, Midland, Michigan.

THE DOW CHEMICAL COMPANY · MIDLAND, MICHIGAN

BELOIT UNIT MODERNIZATION



ONE OF A SERIES SHOWING TYPICAL BELOIT SOLUTIONS TO COMMON MILL PROBLEMS



Beloit horizontal pneumatic reel for 108" fine papers machine at Wausau Paper Mills Co., Brokaw, Wis.

Losing paper because of poor starts at each transfer?

Roll bouncing and chattering against reel drum?

Roll hardness varying from spool to outer layer?

Sheet shifting and wrinkling on reel drum?

Now—5 Beloit Rail-Type Reels to help you solve these problems

If your present reel creates any of the problems listed here you can easily justify the low cost of a new Beloit reel. Beloit—originator of the rail-type reel—now offers five separate models. Each model is engineered by Beloit's experienced technical specialists for specific grades, widths, and speeds.

Beloit Rail-Type Reels Feature:

• Smooth shockless transfers—no loss of paper at roll center • Uniform-density rolls from spool to outside layer • Positive loading of roll in *both* primary and secondary positions • Cross-shaft connected primary and secondary arms for even reeling • Heavy rigid framework to eliminate chattering and maintain precision alignment • Large-diameter parent rolls up to 88" diameter . . . save winder-threading time • Beloit custom controls.

»ACT! *Write today for full information about the new Beloit reel for your machine.*

BELOIT
PAPER MACHINERY

your partner in papermaking

WORLD WIDE PULPSTONE SERVICE!

Behind the world-wide acceptance of Norton pulpstones is a world-wide service organization of Norton pulpstone engineers — a group of men qualified by practical paper mill experience to study your mill and to make specific recommendations based on your type of wood, your kind of grinders and the type of pulp you want to produce.

No matter where your mill is located, there's a Norton pulpstone engineer within reach. He will be glad to specify the correct pulpstone to meet your particular requirements and to render technical service.

Hundreds of pulpstones are shipped each year from the Norton plant at Worcester and from Norton Company of Canada's plant at Hamilton, Ontario. Each has been carefully engineered to meet the special requirements of individual mills in all parts of the world.

Making better products . . . to make your products better

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Norton Company of Canada Ltd., Hamilton, Ont.
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NORTON PULPSTONES

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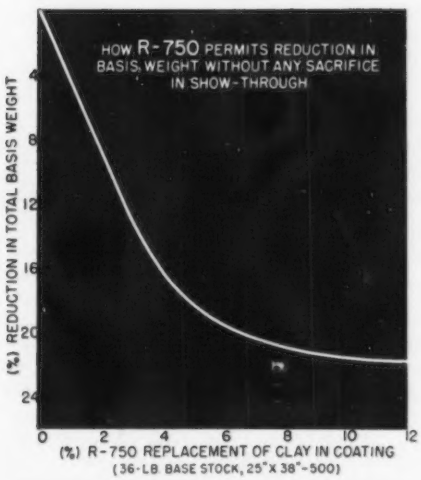
COATING COSTS of Coated Magazine Papers...

HORSE HEAD® R-750 (RUTILE) TITANIUM DIOXIDE



IS SHOW-THROUGH YOUR PROBLEM in developing lighter-weight magazine papers? You can lower your basis weight and yet maintain equal resistance to show-through by replacing part of the coating clay with HORSE HEAD R-750.

Here's the reason why:

HORSE HEAD R-750, a bright white pigment, possesses optimum particle size and highest refractive index. These factors work together to provide maximum resistance to show-through.

This chart, based on results obtained by our Paper Research Laboratory, shows how replacement of small percentages of clay with HORSE HEAD R-750 in coating colors permits substantial reduction in basis weight without any sacrifice in resistance to show-through.

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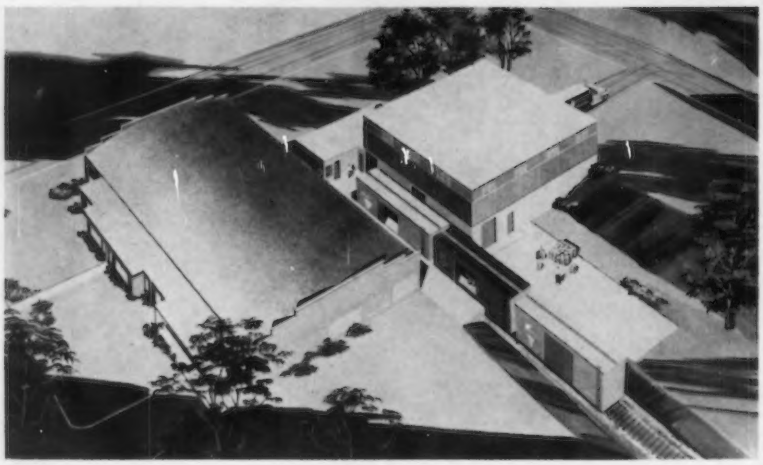
NEW YORK N. Y. KALAMAZOO, MICH. PORTLAND, ORE. SEATTLE, WASH.

PJT NEWS OF SUPPLIERS



E. F. Houghton & Co., manufacturer of paper, textile and metal processing products and specialized lubricants, is now serving Southern industry through its warehouse and office newly located in Carrollton, Ga.

Construction has been virtually completed on a new plant adjoining the present warehouse and office. This plant is served by the Central of Georgia Railroad, as well as by truck lines covering the South. The new plant was designed by Boroughs and Dale, Atlanta architects. The building construction is being done by W. O. Kilgore, general contractor of Carrollton, Ga.

Upon completion of the installation of manufacturing equipment, defoamers, wetting agents, detergents, warp sizes, finishes, lubricants, metal working and heat treating products will be produced locally. These new integrated sales, warehousing and manufacturing facilities represent the latest step in Houghton's expansion program to provide faster, more economical service to industry.

Southern Division sales are under the supervision of A. J. Andre who was formerly in charge of that operation at Charlotte, N. C.

Montecatini announces that license agreements for the industrial exploitation in the United Kingdom by Imperial Chemical Industries and Shell Chemical Co. of the Montecatini and Montecatini-Ziegler patents covering the production of polypropylene for plastics uses (already manufactured and sold in Italy under the trade-mark "Moplen") have just been completed and come into force. Both licensees have announced that plant construction will begin immediately.

These inventions have far-reaching industrial consequences since they not only include the new polypropylene plastic material, but are the starting point for textile fibers and elastomeric substances having new and highly interesting properties.

The Du Pont Film Department, Wilmington, Del., has announced a major expansion of its Chestnut Run sales development and customer service laboratory which will almost double present facilities for the development of new packaging and industrial films.

Construction will begin immediately and when completed in early 1960 will add about 23,000 square feet of new floor space to the four-year-old laboratory at a cost of more than $1,000,000. The laboratory will house about 140 persons.

Principal reason for the expansion is the rapid development of products emerging from Du Pont research, according to Daniel D. Lanning, manager of the laboratory. He said major programs are under way in connection with the following new products: "Teflon" FEP-fluorocarbon film, polyolefin films, new types of "Mylar" polyester film and Type R polyvinyl fluoride film.

Mr. Lanning said the new facilities also represent an expansion of Du Pont's program to develop new and improved types of cellophane, including the new K or polymer-coated types. He said the new laboratory is designed to provide expanded technical assistance to cellophane converters and direct customers.

The Philadelphia Gear Corp. recently began construction of a new manufacturing plant at King of Prussia, Pa. The new plant will replace and enlarge the company's present facilities located in Philadelphia.

The Philadelphia Gear Corp., which until recently was known as the Philadelphia Gear Works, was established in 1892 and manufactures ultra-precision and industrial gearing, speed reducers, fluid mixers, and Limitorque Valve Controls. A nationally known firm, it has sales offices in all of the major cities in the United States, as well as plants in Philadelphia, Los Angeles, and Lynchburg, Virginia.

Stickle Steam Specialties Co. has announced the election of Roger H. Stickle as vice president and assistant manager. Mr. Stickle has been with the company since 1937 as machinist, shop foreman, superintendent and field service engineer.

Francis H. Snyder & Associates was reorganized as a corporation March 21, 1959. To continue and expand the chemical and engineering consulting and research development business, Mr. Snyder, owner and director of the original business, will continue active management as president and chairman of the board.

Other officers and directors are Lewis C. Wallace, vice president and Earl F. Tasman, secretary-treasurer. The firm will continue to maintain offices and laboratories at 29 Church Street, New Milford, Conn., and a process development division on Federal Road, Brookfield.

Allied Chemical Corp. has completed negotiations with The B. F. Goodrich Co. for acquisition by Allied of the business and assets of Harmon Colors, Chester M. Brown, president of Allied's National Aniline Division, announced.

Harmon Colors, a leader in the field of specialty organic pigments for 40 years, has been part of B. F. Goodrich Chemical Co. division. Har-

Modern Methods of Mechanical Pulp Manufacture

This book comprehensively covers all aspects of groundwood pulp production. The author, K. H. Klemm, has a broad knowledge of groundwood manufacturing methods and has been associated with groundwood mills on both sides of the Atlantic. Price: $5.00.

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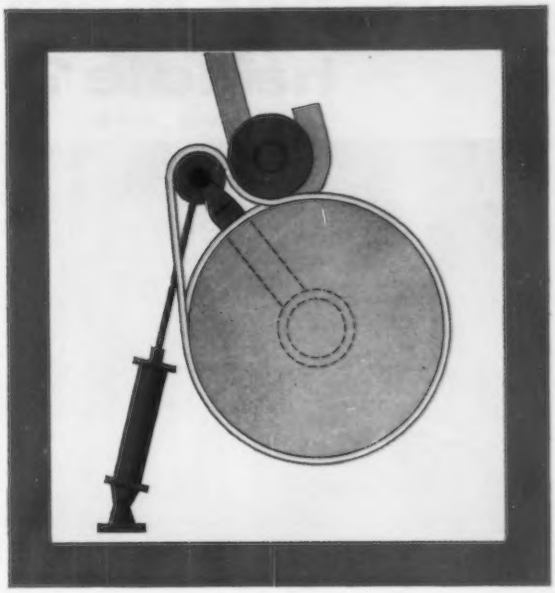


Beloit reel spool starter

• Poor starts at each turnover?
• Spool bounce and chatter?

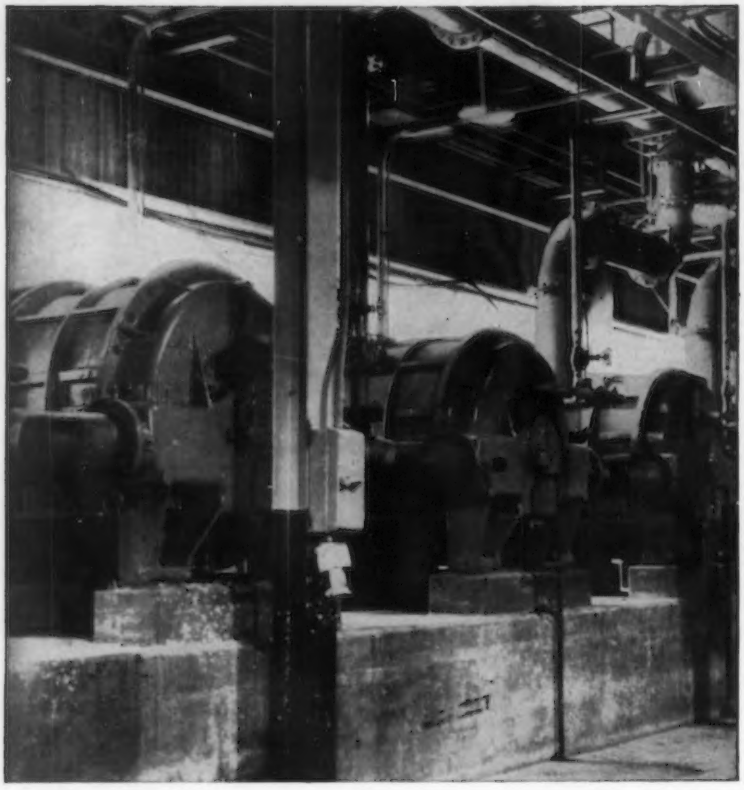
Beloit Reel Spool Starter eliminates needless paper loss

This low-cost item can pay for itself in weeks! Mills report that with the addition of a Beloit spool starter to an existing reel they save hundreds of pounds of paper daily. With this device the spool is at drum speed before contacting the reel drum. No bounce! No chatter!

» ACT! *Write for facts—or let a Beloit Sales Engineer show you the economy and operating advantages of a Beloit reel spool starter. Send inquiry to Beloit Iron Works, Beloit, Wisconsin.*

BELOIT
PAPER MACHINERY
your partner in papermaking

What, actually, do Vacuum Pumps on paper machines handle?



Paper mill engineers know that it is actually a mixture of air and water vapor, but the custom of rating vacuum pumps in terms of air capacity alone causes this important fact to be frequently overlooked.

The presence of this water vapor causes a considerable reduction of the effective air handling capacity of any vacuum pump except the Nash. In the Nash Vacuum Pump the bulk of this water vapor is effectively condensed, due to the Nash operating principle. The air handling capacity of the Nash is therefore not reduced.

That is one of the reasons why Nash Vacuum Pumps are standard in over a thousand leading Paper Mills.

NASH ENGINEERING COMPANY

443 WILSON ROAD, SO. NORWALK, CONN.

mon produces organic pigments. Headquarters, laboratories and manufacturing facilities are located at Haledon, N. J.

Management will remain under the direction of V. C. Vesce, technical director, H. T. Madden, plant manager, and F. F. Bingham, sales manager.

Murray Stempel

Morningstar-Paisley, Inc., has elected Murray Stempel as president, according to Joseph Morningstar, chairman of the board. Mr. Stempel succeeds George J. Muller, who has been elected vice chairman of the board. Morningstar-Paisley, Inc., is a major producer of starches, gums, dextrines, adhesives, and chemical specialties for a wide number of industries including the packaging, paper, food, pharmaceutical, cosmetics, flavoring, textile, printing, mining, coatings, lithography, and tobacco fields.

Mr. Stempel, who has been associated with the Morningstar companies for the past 35 years, was previously executive vice president of Morningstar-Paisley. In 1931, he started an adhesives plant in Chicago, and Paisley Products, Inc., was formed as a wholly owned subsidiary of Morningstar to operate this facility, with Mr. Stempel as executive vice president. When Morningstar, Nicol, Inc., merged with Paisley Products, Inc., early in 1957, Mr. Stempel was elected executive vice president of the combined operations.

Allied Chemical Corp. A number of top organization changes in the Solvay Process division have been announced by I. H. Munro, Solvay division president. Leading the list were the appointments of Wilbur H. Brumfield to post of executive vice president and Raymond Largent to vice president.

In addition, Bennett D. Buckles was named assistant to the president; Robert H. Reed was appointed assistant director of development, succeeding Mr. Largent; A. Gregg Noble fills the newly created post of director of purchases; and Herbert C. Wohlers becomes director of research, Dr. Reed's former post.

Raymond C. Baxter, who has been

In casein or starch formulations . . .

GEN·FLO 62

is tops in paper coating

Gen-Flo, General Tire's high-quality styrene-butadiene latex, has been extensively tested by leading paper manufacturers, and found outstanding for paper coating applications. Entirely compatible with presently used latices, Gen-Flo also offers extremely low odor at no premium in price. Whether your operation calls for starch or casein formulations, Gen-Flo fits perfectly, and offers many advantages:

Superior brightness
Better pick resistance
Higher ink receptivity
Improved opacity
Better smoothness and gloss

Write today for complete product information, and details on how Gen-Flo 62 can improve your paper-coating system and save you money.

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for Your New Paper Plant Abounds in the Southeast Coastal 6!

Keep your operating costs low! Build where vast pine forests shorten the pinelands-to-plant distance, in the Southeast Coastal 6 — Virginia, North Carolina, South Carolina, Georgia, Florida and Alabama.

And there's more than fast-growing timber here to keep your stockholders happy. Rivers of water course throughout this six-state area — wide, deep rivers that solve your major processing problem. Labor is plentiful, skilled or quickly trained. Taxes are favorable. Climate ideal. And people *want* you here!

Let our industrial development specialists suggest two or three select sites to fit your own requirements. No obligation — and all inquiries are kept strictly confidential.

Contact:

R. P. JOBB
Assistant Vice-President
Department G-59
Atlantic Coast Line Railroad
Wilmington, N. C.

ATLANTIC COAST LINE RAILROAD

chief engineer, becomes assistant director of operations, succeeding Mr. Noble; Richard A. Hiserodt succeeds Mr. Baxter as chief engineer; Robert K. Croll was named assistant chief engineer, and Alan G. Follows was appointed assistant director of research.

J. G. Martin

W. E. Butler

Babcock & Wilcox Co. has named John G. Martin domestic sales manager of its Boiler division, S. T. Mackenzie, vice president in charge of sales for the division, has announced Mr. Martin will make his headquarters in Barberton, Ohio, site of the division's largest manufacturing plant.

Succeeding Mr. Martin as manager of the Cincinnati, Ohio, district sales office is William E. Butler, former sales engineer in the Syracuse office of the New York sales district.

After his graduation from Stevens Institute of Technology, where he received a degree in mechanical engineering in 1929, Mr. Martin joined Babcock & Wilcox as a student engineer in Barberton.

Mr. Butler began with Babcock & Wilcox in 1936 as a student engineer in Barberton after receiving a BSME degree from the University of Kentucky.

G. W. Keates

Clark-Aiken Co., Lee, Mass., manufacturer of finishing room equipment and pulp and paper mill machinery, has appointed Gordon W. Keates as its Canadian representative.

Mr. Keates has been associated with the graphic arts industry for more than 20 years. Prior to becoming a manufacturers representative he was with Manton Brothers, Ltd., as a salesman. Before that he served Southam Printing Co. as a pressman

IDEAS

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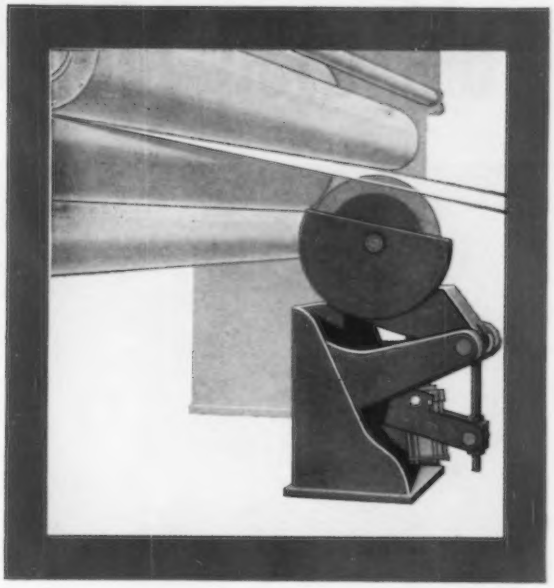

Beloit center slitter, located between calender and reel

- Winder corrugations a converting problem?
- Losing crepe and bulk on your rewinder?

Beloit Reel Slitting Systems can eliminate tissue rewinder problems

Savings in basis weight alone can cover your investment in a few months. The Beloit integrated reel slitting system separates tissue sheets into converting widths at the reel. Loosely wound parent rolls—with valuable bulk and crepe preserved—can be delivered directly from the reel to the converting department.

»ACT! *Write for facts—or let a Beloit Sales Engineer show you how easily and economically you can add a slitting system to your existing reel. Write to Beloit Iron Works, Beloit, Wisconsin*

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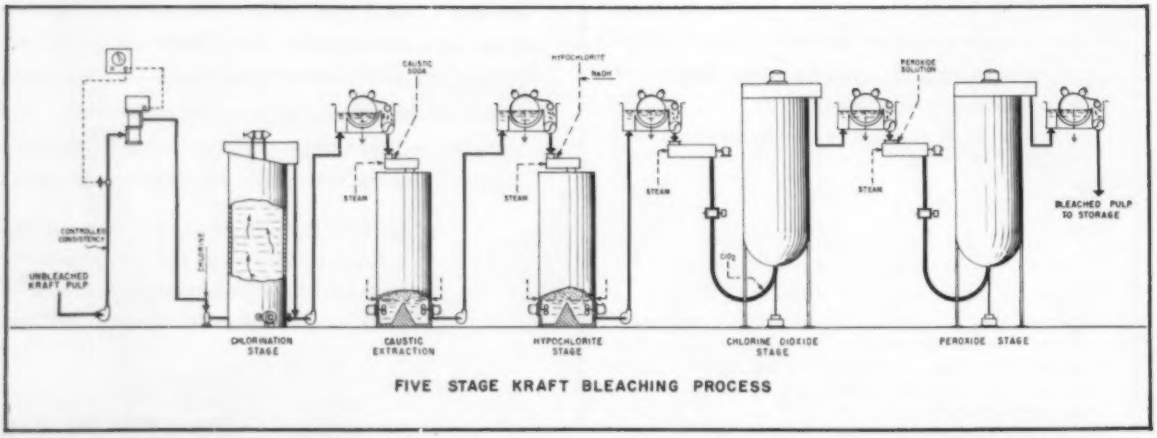
your partner in papermaking

New Marathon Southern mill for 5-stage bleaching

"WHAT A MILL!"
says Marathon's
Tom Bigbee*

"This new mill of ours at Naheola, Ala., covers 78 acres, will consume 200,000 cords of pulpwood annually. About 30% will be hardwoods such as gum, cottonwood, bay magnolia and willow—70% southern pine. This timber produces a fine-quality sulfate pulp, and the mill will be turning out over 100,000 tons of it each year with the new 5-stage bleaching process."

**Trade character of Marathon Southern Corp., a subsidiary of American Can Company*



FIVE STAGE KRAFT BLEACHING PROCESS

TYPICAL 5-STAGE BLEACHING SYSTEM: (1) chlorine for 30 minutes, (2) sodium hydroxide for 90 minutes, (3) hypochlorite for three hours, (4) chlorine dioxide for four hours, (5) hydrogen peroxide for four hours. Brightness reversion tests show that the stability of pulp produced by this process is superior to that of pulp bleached by other methods. Result: higher-quality paper products. For more information on this system call Du Pont.

is the first designed process using Du Pont peroxide

This modern process gives kraft pulp excellent brightness and brightness stability—resulting in whiter paper products for Marathon's customers

Here's the first mill specifically designed to use the new 5-stage bleaching process for kraft pulp—the brand-new Marathon Southern Corp. Mill at Naheola, Ala. This new process combines a mild hypochlorite treatment, a mild chlorine dioxide treatment and a final peroxide treatment . . . takes advantage of the best features of all three bleaching agents.

Here's how Marathon and Du Pont worked together . . .

Marathon was familiar with the use of peroxide in bleaching northern sulfate pulp. Subsequently, more than three years ago, Du Pont personnel discussed with Marathon officials the possibilities of bleaching southern pulp with peroxide. To prove peroxide's advantages, scores of pulp bleaching tests were conducted. Other studies showed that the peroxide process would cost less than one using two chlorine dioxide stages, while producing pulp of comparable brightness. Marathon chose the process on the basis of pulp quality and favorable operating costs.

The advantages of 5-stage bleaching . . .

This new process is a practical method of meeting today's market demands for high-strength kraft of superior brightness and brightness stability. It's a flexible process, too, because pulp can be removed at different stages to obtain the brightness level desired—whether 70 or 85 G.E. or higher. In addition the 5-stage bleaching process using "Albone" hydrogen peroxide can be adapted to any mill that now has one or more stages for chlorine dioxide bleaching.

Whether you're planning a new mill or modernizing an older one, Du Pont's unequaled experience can help save you time and money.

FOR MORE INFORMATION about the 5-stage process for kraft bleaching, just write us at the address below, or phone Wilmington, Delaware, PRospect 4-4698.

PEROXIDES **ALBONE®** hydrogen peroxide **SOLOZONE®** sodium peroxide

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PROCESS STUDIES, DESIGN, SPECIFICATIONS, CONSTRUCTION SUPERVISION
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CONSTRUCTION SPECIALTIES
Chimneys, soil compaction, equipment erection, sliding form construction are Rust specialty services. Available as a single contract or part of a large contract. Ask about Rust's Complete Service.
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Serving Timber Industry since 1910
Timber Estimators and Foresters
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1130 Commerce Title Building
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for 17 years, including 4 years service in the Royal Canadian Air Force.

Mr. Keates brings to his new association as Clark-Aiken's exclusive Canadian agent a complete knowledge of all of Clark-Aiken equipment and services, having worked closely with the company for several years. Mr. Keates' offices are located at 133 Flora Drive, Scarborough, Ontario.

Joseph T. Ryerson & Son, Inc., Houston, Tex., steel and aluminum distributor has named Ralph A. Castillo general manager. He had been serving as branch manager, a position he occupied with Vinson Steel and Aluminum Co. from whom Ryerson acquired the plant last December.

Harper Poling

Mathews Conveyor Co., Ellwood City, Pa., announces that Harper Poling has joined its Chicago Office as a sales engineer.

Mr. Poling received a B.S. degree from Bradley University, Peoria, Ill., in 1953. After graduation, he was associated with Link Belt Co., Chicago, Ill., in the engineering department and as a package handling sales engineer.

Ralston Purina Co. has named Joseph F. Voit sales manager of the Special Soy Products Division. He has assumed his duties at the company's general headquarters in St. Louis, according to an announcement by Vice President Eldred A. Cayce.

W. E. Tjossem is manager of the recently created Special Soy Products Division. This division produces and supplies isolated soya protein to the paper industry under the trade name Purina Procote.

WEMCO has named Raymond H. Harper sales engineer for Torque-Flow pump sales in states west of the Mississippi, William H. Newton, general sales manager, announced today.

Mr. Harper, who has been associated with WEMCO in an engineering capacity since 1953, will handle all sales activities for both industrial and sanitation fields in this area.

J. S. Anderson

Babcock & Wilcox Co., has appointed James S. Anderson, vice president in charge of sales for Tubular Products division, general manager, William J. Thomas, vice president in charge of the division has announced.

In his new position Mr. Anderson assumes "broader responsibilities" in the operation of the division. He continues to report to Mr. Thomas.

The Tubular Products division of The Babcock & Wilcox Co. operates plants at Beaver Falls, Pa., Alliance, Ohio, and Milwaukee, Wis. Its products include seamless and welded carbon, alloy and stainless steel tubing, welding fittings and extrusions.

Food Machinery and Chemical Corp. Carl F. Prutton, executive vice president of the Chemical divisions, has announced the start of construction of a major addition to the Central Chemical Research Laboratory at Princeton, N. J. The expansion, in the form of a new wing, will add more than 50 per cent to the laboratory floor space. Slated for use in February, 1960, the new section will cost around $1,000,000.

C. D. Wood

Worthington Corp., Harrison, N. J., has appointed Charles D. Wood, of its Boston district office, district office manager at Boston, effective May 1st, succeeding Richard M. Cleveland who will retire on June 30, according to A. W. Fraser, general marketing manager.

Mr. Wood, a graduate of the University of Tennessee with a degree in mechanical engineering, joined Worthington at Boston in 1939 as an application engineer.

Richard M. Cleveland's retirement comes after 42 years with the corporation. He joined the company's Holyoke Works in 1917.

TOM BIGBEE SAYS:

"Marathon Southern is 78 acres of quality control!"

"This Marathon Southern mill at Naheola is big . . . and efficient!

"Did you know that the area cleared for the mill here on the banks of the Tombigbee River covers 78 acres . . . and every one of those acres is covered by the pinpoint accuracy of fully instrumented quality control.

"From the time the Southern pine logs are rolled into the stream that takes them to the chipper, through the digester and on through every step of the way to becoming paper or paperboard—instrumented quality control is in command.

"Two new high-speed paper machines are rolling out large tonnages of paper and paperboard. Naheola pulp is being exported for consumption by European mills. And even as these products find their way to converters and paper merchants, a tremendous new warehouse—for pre-shipment storage of finished goods—is taking shape.

"Yes, really quality things are happening at Naheola, where the most modern mill in the industry is in full swing turning fine Southern timber into fine pulp and paper products—a dependable source of supply for dependable quality products."

MARATHON SOUTHERN CORPORATION
Naheola, Alabama (P. O. Butler, Alabama). A subsidiary of:

MARATHON
A Division of American Can Company
MENASHA, WISCONSIN

To help you meet
GREATER
PRODUCTION
DEMANDS

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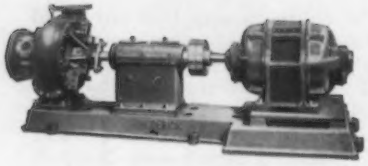
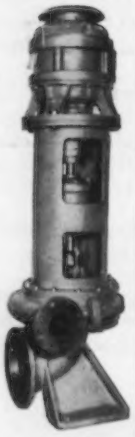
CENTRIFUGAL PUMPS

***Provide* Continuous,**
Trouble-free Operation



Horizontal "TS" Pump

For 40 years, Frederick Pumps have been helping paper mill operators meet ever increasing production demands by giving efficient, economical service with a minimum of maintenance and production down time. There is a complete line of mechanically advanced Frederick pumps for all purposes — each custom engineered and guaranteed to meet the operating conditions for which it is sold.



Vertical "TS" Pump

If you are planning to build a new plant or enlarge your present one, take advantage of the wide experience of Frederick pump engineers—who have helped to solve pump problems for some of the largest mills in the industry. Write or phone today for complete information and illustrated literature.

FREDERICK PUMPS

"The efficient, dependable heart of paper mills for 40 years"

FREDERICK IRON AND STEEL, INC.
FREDERICK *Est. 1890* MARYLAND

Prices of Fibers

MARKET WOOD PULP

SECOND QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

Delivered Basis

	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$ 82.50/ 90.00	$ 82.50/ 90.00	§$90.00/ —	§$80.00/ —	§$90.00/ —
Bleached Gw'd	$ 97.50/100.00	$ 97.50/100.00			
Kraft, Blchd.	157.00/ —	160.00/162.50	$157.00/162.50*		§157.50/ —
Kraft, Blchd. Hdwd.	152.00/ —		§137.00/ —		
Kraft, Semi-bleached.	140.00/ —	140.00/ —			
Kraft, Unbl.	117.50/125.00	125.00/130.00	†125.00/130.00	125.00/ —	
Sulphite, Blchd.	155.00/ —	155.00/ —	*155.00/ —	*155.00/ —	165.00/ —
Sulphite, Bl. Hdwd.	150.00/ —				
Sulphite, Unblchd	135.00/ —	135.00/ —	†135.00/ —	*135.00/ —	
Sulphite, Unb'l. Gl'sn		140.00/ —	†134.00/ —		
Soda, Blchd.	147.00/150.00	150.00/ —			

§ On Dock Atlantic Ports. * Freight allowed. † Varying Freight Allowances

COTTON LINTERS

F.O.B. OIL MILLS
WEEK ENDED APR. 30

	Atlanta	Memphis	Dallas	Los Angeles
Grade 1	n.a.	n.a.	n.a.	n.a.
2	n.a.	n.a.	$ — /6.75	$7.50/7.40
3	$7.50/6.50	$7.50/7.00	6.25/5.75	7.15/6.90
4	6.50/5.50	6.50/6.00	5.50/5.00	6.50/6.25
5	5.50/4.50	5.25/5.00	4.75/4.00	5.75/5.40
6	4.50/4.00	4.75/4.50	4.00/3.75	4.50/4.00
7	4.00/3.00	4.00/3.00	3.25/2.75	3.00/2.75

WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	May 4	May 4	May 4	May 4
No. 1 Mixed Paper	$ 7.00/ 8.00	10.00/ 12.00	9.00/ —	13.00/ —
No. 1 News	14.00/ 17.00	18.00/ —	18.00/ —	18.00/ —
Overissue News (Lg. size)	13.00/ 15.00	15.00/ 17.00	23.00/ —	20.00/ —
Mill Wrappers	19.00/ 22.00	16.00/ 18.00	14.00/ —	15.00/ —
Old Corrugated Containers	24.00/ 25.00	23.50/ 24.00	23.00/ —	23.00/ —
Super Assorted Kraft Paper	35.00/ 40.00	— / —	35.00/ —	55.00/ —
New Double Kr. Ld. Corr. Cuts	35.00/ 37.50	37.50/ —	37.50/ —	35.00/ —
(Semi-chem. medium)	47.50/ 50.00	45.00/ 50.00	45.00/ 47.50	— / —
New 100% Kraft Corr. Cuts	40.00/ 42.50	— / —	57.50/ —	— / —
New Br. Kraft, Env. Cuts	70.00/ 75.00	70.00/ 75.00	52.50/ —	55.00/ —
New Br. Kr. Bag Waste Prntd.	55.00/ 60.00	55.00/ 60.00	52.50/ —	55.00/ —
New Br. Kr. Bag Waste Unprintd	60.00/ 65.00	65.00/ 75.00	60.00/ —	60.00/ —
No. 1 Groundwood Shvs.	25.00/ 30.00	25.00/ 30.00	24.00/ —	35.00/ —
White Newsblanks	60.00/ 65.00	48.50/ 55.00	45.00/ —	55.00/ —
No. 1 Soft White Shvs.	60.00/ 65.00	60.00/ 65.00	55.00/ —	70.00/ —
Super Soft White Shvs.	65.00/ 75.00	75.00/ 85.00	65.00/ —	— / —
Hd. White Shvs.	90.00/ 95.00	90.00/100.00	85.00/ —	95.00/ —
Hd. White Env. Cuts	105.00/110.00	105.00/115.00	90.00/ —	113.00/ —
Col. Tab. Cards	55.00/ 57.50	55.00/ 57.50	52.50/ —	40.00/ —
Manila Tab. Cards	77.50/ 80.00	77.50/ 80.00	75.00/ —	65.00/ —
No. 1 Col. Ledger	35.00/ 47.50	37.50/ 42.50	47.50/ —	35.00/ —
White Ledger	60.00/ 62.50	60.00/ 65.00	57.50/ —	55.00/ —
Mixed Book & Mag.†	25.00/ 28.00	— / —	17.00/ —	— / —
No. 1 Books‡	30.00/ 32.50	24.00/ 26.00	35.00/ —	17.00/ —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

Slimes in Paper and Paperboard Manufacture

PLAYING TWENTY QUESTIONS with the problem of whether slime is animal, vegetable or mineral points up to the fact that in paper mill practice, the word "slime" is no longer restricted to microbiological growths.

To mill men, slimes are any of the slimy deposits which may appear, ranging in content from hydrated fines and true microbiological slimes through hydrated aluminum oxide gels and entrained pitch, iron, silica and calcareous substances.

Identification Critical

Obviously, any appearance of slime in a mill system calls for *positive identification* of its substance, and *action* to bring it under control.

In appearance, it is usually difficult to detect any real difference between slime caused by bacteriological growth and that produced by masses of wet, hydrated stock and inorganic gels. Laboratory analysis is necessary to provide the detailed information required for an expert to recommend the type of control program to be followed.

Variety of Analyses Needed

Nalco Field Service Men have the training and experience needed to deal quickly and effectively with paper mill slimes. They carry test equipment to analyze your system . . . not only for microbiological activity, but also for the many organic and inorganic elements that are part of most deposits. Supplementing their on-the-spot service is the Nalco Paper Process Laboratory, a service and research center equipped for the most exacting analysis work and for comprehensive research on every phase of pulp and paper mill slime control.

Prevention vs. Remedy

Keeping slimes from forming in mill systems with a preventive program has proved by far the most economical way to operate. Waiting for the appearance of slime before applying remedial treatment invites expensive time and quality losses, as well as higher treating costs.

Microbiological section of the Nalco Laboratories.

Nalco's Year 'Round Service

Seasonal variations in slime-forming conditions make effective slime control programs anything but static in nature. Your Nalco Representative is the man to put on the job to secure positive, low-cost slime *prevention*...all year long.

Call him—or write today for Nalco Bulletin P1.
National Aluminate Corporation, 6221 West 66th Place, Chicago 38, Illinois. Branches and affiliates in Canada, Germany, Italy and Spain.

Nalco CHEMICALS

Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Mar. 28	Apr. 4	Apr. 11	Apr. 18	Apr. 25
1959	92.9	90.4r	95.1r	95.6r	94.7
	Mar. 29	**Apr. 5**	**Apr. 12**	**Apr. 19**	**Apr. 26**
1958	90.5	89.8	87.8	87.2	88.1

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1959	87.8‡	89.2‡	93.1‡	—	—	—	—	—	—	—	—	—	—
1958	86.9	89.5	89.5	88.4	87.2	87.2	75.3	89.6	86.5	91.6	90.4	83.1	87.1

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1952	1953	1954	1955	1956	1957	1958	1959
Year to Date	95.5	94.4	93.9	95.5	101.4	95.7	87.8	91.1
Year Average	88.6	92.3	91.6	94.0	97.9	90.9	87.1	—

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

	Mar. 28	Apr. 4	Apr. 11	Apr. 18	Apr. 25
1959	95	89	94	95	93
	Mar. 29	**Apr. 5**	**Apr. 12**	**Apr. 19**	**Apr. 26**
1958	86	88	82	87	81

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1959	86	93	95	—	—	—	—	—	—	—	—	—	—
1958	80	86	88	84	84	86	76	93	90	95	92	81	86

† *Percents of operation based on "inch-hours" reported on a 6-day basis to the National Paperboard Association.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	THIS WEEK ENDING Apr. 25, 1959	LAST WEEK ENDING Apr. 18, 1959	CUMULATIVE TO DATE Jan. 1 to Apr. 25 inc., 1959
% Activity	93%	95%	92%
TOTAL	304,464	323,387	4,889,482
Liner	100,305	115,332	1,661,956
Corrugating Material	48,975	48,660	739,526
Chip & Filler Board	4,871	6,281	81,157
Total Containerboard	154,151	170,273	2,482,639
Folding	57,345	55,327	916,053
Set-Up	11,284	11,932	189,803
Special Food Board	30,723	28,386	453,936
Other	50,956	57,469	847,046
Total Boxboard	150,313	153,114	2,406,843
Received	311,340	287,889	
Unfilled End of Week	455,533	448,740	

Alvin H. Johnson & Co.

INCORPORATED

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PAPER MILL DESIGN PROCESS ENGINEERING POWER PLANTS

STRUCTURAL AND ARCHITECTURAL DESIGN

REPORTS APPRAISALS ESTIMATES AND SURVEYS

OBITUARIES

Alva F. Gluck, former president and general manager of the Coated Paper Products Co., later known as the Minerva Wax Paper Co., Minerva, Ohio, died April 15. He retired from the firm in 1953.

Paul Riegel Bachman, 76, retired vice president in charge of sales of the Riegel Paper Corp., New York, died April 15 at his home in Montclair, N. J.

Mr. Bachman had been with the corporation 47 years before his retirement in 1947. During World War II he served for two years on the War Production Board.

Kenneth H. Kent, 52, president of the Standard Paper Co. Inc, Bellows Falls, Vt., died at his home March 22 after several years' failing health. A lifelong resident of Bellows Falls, Mr. Kent joined the Standard Paper Co. in 1930 and became its president in 1946.

Gustave A. Bisler, Jr., 79, president of the Quaker City Paper Box Co., Philadelphia, and a director of G. A. Bisler, Inc., paper box manufacturers, died April 17 at his home in Merion, Pa.

William H. Millspaugh, manufacturer and inventor of pulp and paper mill machinery, died at his home in Sandusky, Ohio, on April 21st at the age of 90.

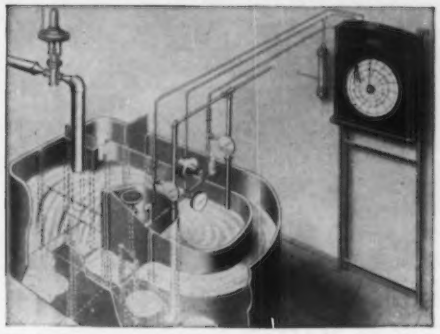
Robert C. Seavers, Jr., 37, sales engineer with Miller Hofft, Inc., died of a heart attack in Redding, Cal., on April 9th, 1959.

Eugene E. Smith, 55, production manager, Hollingsworth & Vose Company, East Walpole, Mass., died suddenly on April 21st, after a short illness. Mr. Smith had been with Hollingsworth & Vose since 1920.

Correction

Due to a typographical error, the article, "Looking at Calender Box Treatment," in our April 6 issue, was credited to Edward E. Stephenson, Southland Paper Co., Kalamazoo, Mich. This should have read Sutherland Paper Co., Kalamazoo.

...The Brammer



Highly effective consistency control

Holds stock consistency accurately to plus or minus 1/10 of 1%. The Brammer Recording Consistency Control —product of Pandia Inc. Division—is doing it wherever installed.

No moving parts—no maintenance problems.

Available for full flow or bleed-off operations—ideal as the basic element of a complete stock proportioning system.

Get details from Pandia.

THE BLACK-CLAWSON COMPANY
Pandia Division
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Concrete Gravity Air-Water-Wash type water Filtration Plant producing, at low cost, water with turbidity 0, color under 5 and iron 0.05 p.p.m. Fe.

OTHER PRODUCTS

Demineralizing Plants
Water Softening Plants
Pressure Filter Plants

and

All other types of water treating systems, including strainer valves, air wash systems, filter sand and anthracite beds and all filter repair and replacement parts. Over 50 years experience building new and modernizing old water treatment plants.

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HUNGERFORD & TERRY, INC.
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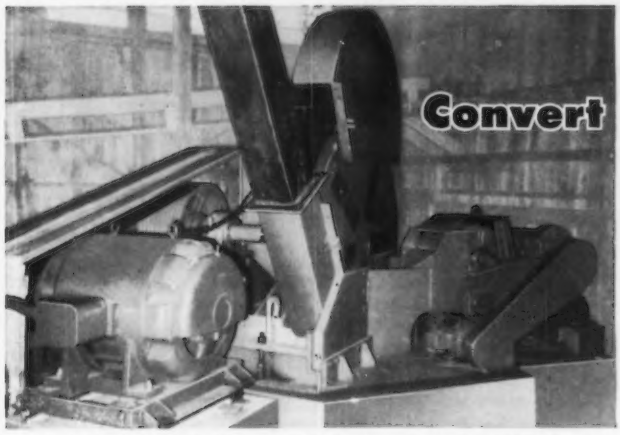

Carthage 60" Slab Chipper with horizontal feed. A five knife machine furnished with or without power feed and with gravity or blowing discharge. Capacity approximately 10 cords per hour. A companion chipper to our popular 39" horizontal slab chipper.

Convert Sawmill Waste into $

with a Carthage 60" Slab Chipper

Slabs, edgings, rounds and other waste wood are fast becoming an important source of chips for pulp mills—an important source of needed profit for hundreds of sawmills.

Cash in! There's a Carthage waste-wood chipper (size range 39" to 64") exactly suited to your requirements. Don't miss this big extra income.

SEND THE COUPON TODAY

CARTHAGE MACHINE CO., CARTHAGE, N. Y.
Please send full information on Carthage waste-wood chippers.

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Firm.....
St. or Rd.....
City..... Zone.... State.....

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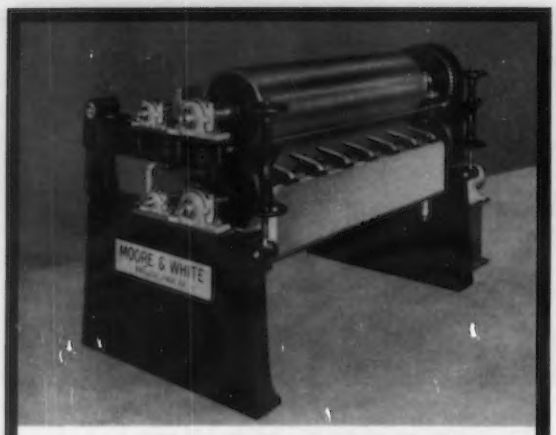
CARTHAGE MACHINE CO.
CARTHAGE, N. Y.



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WOOD'S DUCTILE IRON PULLEYS INCREASE SCOTT'S MACHINE DRIVE SPEED POTENTIAL 50%

Split taper-cone pulleys of ductile iron, designed and manufactured by Wood's, have solved for Scott Paper Company the age-old problem of how to speed up flat belt drives. These new pulleys operate at rim speeds up to 9000 fpm (calculated allowable speeds up to 14,000 fpm), a 50% increase in speed over previously used, cast iron types. Pulleys are but one of the many, money-saving applications of this remarkable metal. Look into its advantages.

WRITE FOR YOUR COPIES OF "DUCTILE IRON" AND "A CASE FOR DUCTILE IRON ECONOMY."

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CHAMBERSBURG, PENNSYLVANIA
ATLANTA • CAMBRIDGE • CHICAGO • CLEVELAND • DALLAS

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Stainless Steel Screen Plates

Simple Construction:
Heavy one-piece steel plate.
One-piece Bronze "shock-absorber" grid frame.
Joined with forged-in Inconel rivets. (no welding)

Highest Capacity: Cut with our famous "DUPLEX SLOTS," giving top screening capacity.

Instantly Interchangeable: With any standard ⅜"
Bronze plates either Drilled or Beveled edge.
Also available ⅝" thick for "T"-Bar installation.

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Screen Plate Co., Inc.
301 South St., Fitchburg, Mass.

Back view showing simple, rugged, two-piece construction.

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A Valuable Textbook for the Paper Industry

Embracing the Complete Lectures as given at the University of Maine.

Three hundred and seventy-three pages and an additional 4-page colored insert of up-to-date material covering a broad field in both pulp and paper making and including many fine illustrations and diagrams.

For students expecting to enter the industry who wish to increase their knowledge and improve their positions, this textbook offers a complete education in pulp and paper manufacture.

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TECHNICAL SERVICE ENGINEER

Large manufacturer of Kraft Linerboard and Semi-Chem Medium desires individual with experience in corrugator and general converting operations. Position calls for individual to render technical service to a wide range of customers in the converting field. Position involves traveling.

In replying, give full particulars, including education, experience, salary expected, etc., together with a recent photograph if available. All replies will be held in strict confidence. Address Box 59-145 care Paper Trade Journal.

M-18

Opening Available for young man in association work with background in paper or board manufacture. Must have good personality and sound judgment. Some traveling required. New York office. Good opportunity for advancement. Reply in confidence to Box 59-140 care Paper Trade Journal. M-11

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has challenging staff positions in expanding Research and Development for experienced men in the fields of

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2. Paper Technology—involving the improvement of the physical properties of paper
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Mead offers opportunity for recognition and growth with friendly working and living conditions. Location, Chillicothe, a pleasant town of 28,000 in southern Ohio. Your inquiry with full resume will receive immediate, confidential attention. Write to:

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THE MEAD CORPORATION

Chillicothe, Ohio

or call our employment representative

John E. Watson

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for an interview

during the

TAPPI Coating Conference

M-18

We are interested in a Technical/Sales representative to cover the Southeastern states to sell our chemical specialties to the pulp and paper trade. If you are interested in such a position, please send your resume to Box 59-150 care Paper Trade Journal. M-11

CHEMICAL ENGINEER

Graduate Chemical Engineer for new engineering and development work. Job will require some travel to operating units in North America. Will be located in Southeastern U. S. A.

Applicant must have experience in sulphite pulp process. Experience in recovery of by-products in sulphate and sulphite processes desirable. Age up to 40 years. Good salary and advancement opportunities. Organization has no chemical engineers and is now entering chemical manufacturing field. Our employees know of this ad. All replies treated in confidence. Submit detailed resume to: Box 59-156, care Paper Trade Journal.

TF

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PRINTING PRESSES

1—65" 6-color Kidder Master Anilinor
1—54" 1-color Rotogravure Press
1—49" 1-color Rotogravure Press
1—48" 4-color Cottrell Heinrich; 3 Flexo; 1 Gravure
1—42" 4-color Kidder Std. Anilinor
1—42" 6 color Kidder FR-6 Standard Master Anilinor
2—33" 6-color Cottrell-Heinrich Flexo Presses
1—30" 4-color H-S Flexo Press
1—24" 5-color Kidder Celloprinter
1—18" 2-color Potdevin (Model-217) Roll to Roll Press
1—17" 3 color Heinrich "Lilliput" Flexo Press
1—10" 4 color Roto Press
2—New Era Presses;—9" x 12"
2—Meisel rotary press for form printing
1—23" two color Manhasset Flexo tail printer

POWER PAPER CUTTERS

Seybolds: 1—44" late model Seybold Model P4460 New 1952
Precision: 40", 50" & 64"; 10Z: 40", 57" & 65"; 20th Century: 45", 54" & 60"; Dayton (6Z): 35", 40" & 84"; Holyoke: 65"; Sheridan: 36" new model, 55"; Oswegos: 38" & 44" & 34", 54" Heavy Duty; Lawson: 52" Auto Space & 52" Standard

CAMACHINES

1—72" Type 10, Anti Friction bearings. Speed 2000 F.P.M.
1—75" 10-11
1—72" 26-3A Cameron
1—72" 10-04 Shear Cut
1—62" Late Type 10 Model .04-1 BPMR (40" diameter Rewind)
1—62" & 2—52" 9-5
1—62" 10-5
1—62" 26-2A with 100 score cutting units
1—62" 40-1-AF
1—52", & 1—42" Model 24-7
1—42", 50" & 62" Type 6

OTHER SLITTERS

1—106" Langston (60" Diameter Rewind)
1—82" Langston Type B
1—60" Langston Type A
1—36" Kidder SLN (Shear Cut) Fully Equipped for converting adding machine & teletype rolls.
30" Fales Model B Slitter and Rewinder
2—24", 1—30", 1—36" & 1—40" Kidder S.L. Shear cut

MISCELLANEOUS MACHINES

1—81" Dietz "Facial Roll" Toilet Converter (1954)
1—Lawton Mod. "A" Jr. Toilet Roll Wrapper
4—62" 25W H-S Roll Winders
2—60" Potdevin Squeeze Roll Waxers
1—60" Hot Melt Coaters & Laminators
1—46" Reverse Roll Coater
1—30" Double Reverse Roll Coater
1—90" Duplex Hamblet, Layboy and Back Stands
10—Hamblet Sheeters 32", 42", 45", 50", 62", 68", 72", 84", 90" and 104"
1—30" Peters Sheeter, Model UD
1—Hayssen Single Package Wrapping Machine Model 84 L.U.
1—Beasley French Bag Machine. Range: (2" x 2½" to 6" x 13⅜")
1—Potdevin (Model 111-S) F & S Cello Bag Machine, Electric Eye
1—Potdevin Model 72-C Cellophane satchel bottom bag machine
1—Potdevin Model 296 Duplex Coffee Bag Machine
1—Weber Model "CN" Cellophane Satchel Bottom Bag Machine
1—Simplex Model 4-7 Cellophane Bag Machine
1—Roto Bag Machine Po-5
2—Po-2 Roto Polyethylene Bag Machines.
2—Hayssen 4 roll Toilet wrappers
1—Hayssen Model 5-9 Cellophane Wrapper
1—36"-45" and 1—55" Globe sheeters
1—48" Unicraft Embosser
2—Hudson Sharp Napkin Machines, with embossing attachments; 1 — 3 Deck (No Printer), 1—2 Deck with 2-color printer.
3—Seybold—4—Post Die Presses 38" x 24", 44" x 30", 48" x 31" & 59" x 32"

A-27

Help Wanted

Help Wanted

POWER PLANT ENGINEER

Graduate Mechanical or Electrical Engineer for new engineering and development work. Job will require some travel to operating units in North America. Will be located in Southeastern U. S. A.

Applicants must have experience with high pressure turbo-generators and boilers. Hydro-electric experience desirable as well as test course experience with manufacturer of electrical or steam equipment. Age up to 40 years. Good salary and promotional opportunities. Our employees know of this ad. All replies treated in confidence. Submit detailed resume to: Box 59-157, care Paper Trade Journal. TF

SALES ENGINEER WANTED

Small, growing paper mill machinery manufacturer needs experienced sales engineer. Salary will be commensurate with experience and capabilities. We invite you to send us your resume. It will be in confidence. Charles P. Raymond Service, 294 Washington Street, Boston, Telephone LIberty 2-6547. M-18

PAPER CONVERTING MACHINERY DESIGNER

Wanted by manufacturer of paper and film bag machinery and printing presses.

Located in pleasant New Jersey community.

Degree not necessary—only the ability and practical background for independent design of converting machinery.

Excellent opportunity for capable man. Salary open.

Please send resume of experience. Box 58-13 care Paper Trade Journal.

TF

RESEARCH CHEMICAL ENGINEER

Research Chemical Engineer for Research and Development in paper and new products. Advanced degree desirable. Experience in paper essential. Salary commensurate with education and experience. Southeast location. Please send complete resume and salary requirements in first letter to Box 59-149 care Paper Trade Journal. M-18

PROJECT ENGINEER FOR COATING DEVELOPMENT

Technically trained, mechanical engineer with several years mill experience. Real opportunity for advancement in a new area, with established, well known paper manufacturer. Coating development project will involve engineering, construction and operation of pilot plant equipment with ultimate installation of full production equipment. Experience in paper coating desirable but not necessary. Your inquiry with full resume will receive immediate and confidential attention. Reply Box 59-152 c/o Paper Trade Journal. M-18

SALES APPLICATION ENGINEER WANTED For Sales Department of converting machinery builder in New York State. Prefer mechanical engineering background. Varied, interesting, and growing product line in paper, film and foil machinery. Offers excellent growth opportunity. Address Box 59-102 care Paper Trade Journal. J-1

WORKING MASTER MECHANIC

For small midwestern paper board mill. Must be qualified to take complete charge. Excellent opportunity for a man who wants to get ahead. Write Box 59-153 care Paper Trade Journal. M-25

PROJECT ENGINEER

Young Chemical engineer or Paper Technology graduate with experience in high solids Pigment coating, to participate in a coating development program. Real opportunity for advancement in a new area, with established, well known paper manufacturer. This position requires a man with initiative, ambition and enthusiasm, to develop products and methods from laboratory through pilot plant to full production. State full background and experience. All replies confidential. Reply Box 59-151 c/o Paper Trade Journal. M-18

WANTED

ASSISTANT SUPERINTENDENT FOR TWO MACHINE PAPERBOARD MILL IN THE EAST. MUST HAVE EXPERIENCE ON ALL GRADES OF PAPERBOARD AND KNOW FURNISHES, GRADES, ETC. ADDRESS BOX 59-94 CARE PAPER TRADE JOURNAL. M-11

SALESMAN WANTED

for old established Eastern two machine Paperboard Mill. Must be familiar with White and Colored Boards and various other grades of Paperboard. Excellent future for right man. Address Box 59-130 care Paper Trade Journal. M-11

Situations Wanted

ENGINEER AVAILABLE

With background of over 30 years in the pulp, paper and board industry as Plant Engineer and Chief Engineer. Qualified to supervise engineering, maintenance, power and construction. Extensive labor relations experience. Permanent or temporary assignment considered. Address Box 59-116 care Paper Trade Journal. M-11

MAN WITH EXTENSIVE EXPERIENCE wishes change as General Superintendent, Paper Mill Supt. or Manager. 35 years on printing and writing grades on high speed Fourdriniers. Will go any part of world. Prefer tropics. Available on short notice. Address Box 59-148 care Paper Trade Journal. M-25

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IMMEDIATE DELIVERY

1—128" B & S 10-Roll Calender Stack. King Roll 24" Dia. Heavy box frames, full set of doctors. Excellent Condition.
1—86" Farrel 8-Roll Calender Stack. Anti-friction Bearings. Excellent Condition.
26—36" x 72" Complete Dryer Section, Stack, Drives, Etc.
10—48" x 150" Pusey & Jones Dryers.
1—84" Kamyr Machine, Complete. 75 ton per day output.
1—E. D. Jones Majestic Jordon No. A-482. New S.S. Fillings. Like New.
1—E. D. Jones Imperial Jordon, S.S. Fillings
1—Noble & Wood Mammoth Jr. Jordon, S.S. Fillings
1—Monarch Jordon, Model SP, Serial #21095, no fillings. Direct connected to a 75 H.P. G.E. 400 RPM Motor.
1—No. 3 Jones Pulpmaster, Late Type. Complete Drive.
1—Dilts #1 Hydrafiner, Anti-friction Bearings.
1—45" Seybold-Dayton Trimmer and Cutter with 5 H.P. 220/440 Volt Motor.
1—A.P.P. Rotary Centrifugal Pulp Screen, 40" Dia. x 42" Face. Serial #1274227. Like new. Capable of 40 ton groundwood pulp per day.
1—Trimbey Senior Rotary Screen.
2—Impco Rotary Pulp Screens.
3—No. 3 Impco Rotary Knotter Screens. S.S. Plates.
1—110" Pusey & Jones 2-Drum Winder. A.F. Bearings.
1—Hudson Sharpe Toilet Tissue Converting Machine. Ser. #2123. 8 Spare Mandrel Bars.
1—42" Dia. x 110" Face Pope Type Reel. Excellent Condition.
1—25" Dia. x 156" Face Sandusky Suction Couch, Bearings & Stands.
1—22" Dia. x 138" Perforated Face Sandusky Suction Couch, Bearings & Stands.
1—10-Knife Carthage Chipper with Anti-friction Bearings.
1—54" Dia. x 48" Face Valley Iron Tub Beater.
1—Dilts 53" Dia. x 60" Face—2000 lb. Iron Tub Beater. S.S. Extractor Type Hood.
1—Seybold Knife Grinder. Size G, 84" Table. Serial #4X802.
1—Sandy Hill Sulphur Burner. Complete.
2—#2 Bird Screens with Copper Vats & S.S. Plates.
1—Tugboat Annie Pulper.
1—Worthington Air Compressor, Model 5TR2, 2-Stage, Air Cooled. 5 H.P.
1—C.P. 12 x 10 Air Compressor, 100# Pressure.
1—I.R. 7 x 7 Air Compressor. 100# Pressure.
1—No. 244 Mattison 18" Core Cutting Saw—5 H.P. 3450 RPM, 3/60/220-440 volt.
1—90 H.P. Terry Turbine, Type G-4000/1000 RPM. For Paper Machine Drive. Complete.
1—No. 2 Jones Pulper. A.F. Bearings, Spare Worm.
1—36" Putman H.D. Lathe—15' Centers.
1—24" x 6' L & S Geared Head, H.D. Machine Lathe, Taper Attachment, Hollow Spindle, Motorized.
1—A.C. 75 H.P. 3/60/220-440 Volt, 720 RPM. T.E.F.C. Type ARZX Motor.
1—A.C. 60 H.P. 3/60/220-440 Volt, 720 RPM. T.E.F.C. Type ARZX Motor.
1—G.E. 100 H.P. MG Set, 250 Volt D.C.
1—250 H.P. Ingersoll Rand Diesel Engine Generator Set—G.E. Generator, 150 KW, 480 Volts, 720 RPM.

Save over 50% on your requirements for New Jordon Fillings. S.S., Bronze & Carbon Steel.

Gear Reducers, P.I.V. Drives, Generators, B.B. Pumps, Stock Pumps, Plunger Pumps, Etc.

1000 Electric Motors from ¼ H.P. to 600 H.P. In Stock.

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BARKING DRUM
1—12 ft. diameter x 45 ft. long

BEATERS
2—1500 lb. rag beaters, Valley Iron, bandless rolls, 54" x 48", cast iron tubs

CALENDER STACKS
1—3 roll 84" calender stack.
1—4 roll 72" Calender Stack. (Extra heavy duty).
1—5 roll 82" face.
1—5 roll 86".
1—7 roll, 84" face.

CHIPPERS
1—96" Murray 4 knife Chipper—anti-friction bearings.
1—84" 10 knife Carthage Chipper. Anti-friction bearings.
24—Chipper Knives 15¾ x 8¼, 2 slot.

CRUSHER & HAMMERMILL
1—Murray Chip Crusher.
1—Williams Hammermill
1—Jeffrey Shredder

CYLINDER MOLDS
3—42" diameter x 106" face
7—36" diameter x 94" face, hollow shafts, Very good condition.
1—30" diameter x 72" face.
1—30" diameter x 92" face.
2—36" diameter x 82" face
2—36" dia. x 54" face.
3—36" diameter x 90" face, 18" diameter couch rolls.
1—60" dia. x 170" face.

DIGESTERS
1—Biggs 12' 6". (Globe)
1—10' high x 5' dia. High pressure vertical digester.

DISINTEGRATOR
1—Shartle 8" disintegrator (new) with 125 horsepower induction motor. (totally enclosed)

DRIVES
1—Rice-Barton hypoid enclosed drive, 4 to 1 ratio.
1—#6 Reeves vertical—anti friction bearings, totally enclosed.
1—Sandy Hill right angle 50 H.P. (4.75 to 1).
1—Jones 21 H.P., ratio 10 to 1 (enclosed angle drive)
1—#4 Reeves Drive
2—Waterbury Hydraulic Variable speed line shaft drives (from 40 to 100 H.P.)
1—5 H.P. Reliance Drive, complete with starting equipment, like new.
1—20 H. P. U. S. Varidrive
1—Agitator drive
1—400 h.p.—Westinghouse Drive

DRYERS
6—24" diameter x 80" face, Lukens High Pressure Dryers, anti friction bearings.
1—28" diameter x 84" face
2—30" diameter x 40" face with bearings
2—30" diameter x 48" face with bearings.
4—48" dia. x 52" face with frames, gears, bearings
1—36" diameter x 44" face
3—36" diameter x 76" face.
5—36" diameter x 84" face and gears
1—16" diameter x 54" face (steel)
1—48" diameter x 118" face
6—48" diameter x 130" face.
1—48" diameter x 92" face.
2—Calender Dryers, bronze, 36" x 128", with frames, gears & necessary rolls to make up the unit.

EMBOSSING CALENDERS
1—43" 3-Roll Embossing Calender.
1—62" 2 roll Embosser.

EXTRACTOR ROLL
1—Extractor roll, 26" diameter x 104" face

FILTER
1—Dorr-Oliver Filter, 3 ft. dia. x 6 ft. face, stainless steel construction, with pump.

FLAT SCREENS
1—8 Plate "Packer"
1—12 Plate "Packer"

FRAMES
Beloit Heavy Duty Dryer Frames for 100 Dryers (42" Dia.) 4 Stack. Immediate Delivery.

HOGS
2—Mitts Merrill Type 15 C.F.

JORDANS
1—Jones Midget Jordan, s.s. fillings, with 40 h.p. motor and spare new fillings
1—N & W Unifiner, Mammoth Junior No. 3
1—Noble & Wood Mammoth
1—Noble & Wood Monarch, Type D.

LABORATORY EQUIPMENT
1—5 lb. Valley Beater.
1—Emerson Jr. #1 Jordan, like new condition, with motor.
1—Bauer-McNett Fibre Classifier
1—Press Roll 6" diameter 24" Face, steam jacketted
1—2" Shartle Hydrapulper
2—8" x 8" Valley Sheet dryers
1—12" x 12" Valley Sheet dryer
1—6" diameter Hydraulic Press
1—Experimental Digester (High Pressure)
1—15 lb. E. D. Jones Beater
1—8" x 8" Valley Hydraulic Press
1—Clark Softness & Stiffness Tester
1—Williams Freeness Tester, with Timer
1—10" Butterworth Padder.
1—Thwing Albert Tensile tester
1—Gurley Densometer Model 4110
1—20" Sprout Waldron Double Disc Refiner, A-F Bearing with motor.

LAMINATING MACHINES
1—52" face Waldron Laminating Head
2—84" Asphalt laminators.

MISCELLANEOUS
1—#1 Miami Selectrap

MOTORS
5—25 h.p. Westinghouse, totally enclosed, ball bearings, 705 r.p.m.
1—40 h.p. Westinghouse, totally enclosed, ball bearings, 880 r.p.m.
1—60 h.p. upright induction motor.
1—30 h.p. upright induction motor
1—200 HP General Electric Synchronous Motor and Starting Equipment (3/60/440, 360 RPM).

PRESS ROLLS
2—Chilled iron, chrome plated 9" x 72"
1—Chilled iron, chrome plated 12" x 100"
1—Chilled iron, chrome plated 10" x 74"
8—sets (1 rubber, 1 chrome steel) 74" face x 15" dia., complete with bearings.
2—Presses consisting 2 Rubber & 2 Granite Rolls, each 20" diameter x 120" face.

PULPERS
3—Dyno-Pulpers

PUMPS
1—Economy Sand Pump, 600 r.p.m., 20' head, 50 h.p. motor.
1—Morris-10,000 g.p.m. 25 ft. head (all bronze)

REELS
1—100" Black-Clawson Pope Reel, like new
1—200" Beloit Pope Reel, 72" finished roll
1—86" 2 bowl reel.
1—84" 3 bowl revolving reel.
1—100" Rice Barton 2 bowl Reel, heavy duty.
1—123" 3 bowl Revolving Reel
1—134" 2 drum
1—72" Downingtown Reel, 2 bowl.

REFINERS
1—Dilts Classifiner, practically new
1—Rice Barton Dynofiner, details on request.
1—Dilts, #1 Hydrafiner, stainless steel filing, anti-friction bearings, excellent condition, including 125 h.p. motor
1—#4 Shartle Hydrafiner
1—12" Wiener Refiner, with 200 h.p. motor
1—20" Sprout Waldron double disc refiner, A-F bearings with motor
1—double disc Bauer Refiner, with 2-150 h.p. motors
1—double disc Bauer Refiner, with 2-50 h.p. motors.

REGULATOR
1—Trimbey Consistency Regulator

ROLL GRINDER
1—36" Farrell Roll Grinder, 250" face

ROLLS
Felt, Table, Press, Breast, Couch, etc. Various sizes and types. (Bronze, Rubber, Iron, etc.)

ROTARY SCREENS
4—#2A Bird Rotary Screen, copper vats.
7—Trimbey, Senior Knotter Screens
1—#2A-50 Bird, copper vat
2—APMEW Rotary Pulp Screens.

SAVEALLS
1—LaMorte, 48" diameter x 82" face cylinder mold.
2—Savealls, cylinder molds, 42" diameter x 106" face, brand new vats.

SCREEN PLATES
Bird Rotary screen plates.

SHEETERS
1—132" Hamblet heavy duty duplex sheeter, anti-friction bearings throughout, including layboy and backstand.
1—84" Hamblet, duplex, back stands.

SHREDDER
1—16" "Swift" Paper Shredder

SLITTERS & WINDERS
1—32" Cameron Type 28-8-3, shear cut duplex, 30" rewind, constant tension and variable speed motor drive, practically new condition. Will lengthen up to 72" wide.
4—42" Cameron Type 6
1—42" Cameron Type 26-2A
3—50" Cameron Type 6
1—62" Cameron Type 6
1—86" Two Drum Moore & White 50" diameter rewind.
1—96" 4 drum Moore & White winder
1—102" Cameron Type 18, 60" diameter
1—122" Cameron Type 18, 60" diameter, anti-friction bearings

SLITTING DEVICE
84" Quick change slitting device shear cut, complete, practically new.

STOCK PUMP
1—10 x 20 Shartle Triplex

STRAINER
1—Elliott Twin Strainer, Type R

SUCTION COUCH SHELL
1—Downingtown suction couch shell only, 127¼" face 26" diameter

SUCTION COUCH ROLL
1—Beloit, 36" diameter x 246" face, SKF bearings.

SUCTION FELT ROLLS
1—Gilbert & Nash 122" face
1—Beloit Rubber Covered Suction Felt Roll 109 face x 20½" diameter.

SUCTION PRESS SHELL
1—14" diameter x 100" drilled face, suction Press Shell only.

SUPER CALENDER STACK
1—9 Roll 56"

TABLE ROLLS
22—Rubber Covered 10" diameter x 246" face
30—4" dia. x 130" face (will cut to size)

THICKENERS
2—Iron End Vats with 36" diameter x 84" face Cylinder Molds and 20" diameter couch rolls, including spare cylinder mold and spare couch roll, all anti friction bearing equipped.

TOILET WINDERS
2—72" Hudson-Sharp (Surface type winder)

TRIMMER
1—84" Seybold
1—36" Oswego

VACUUM PUMPS
1—L-4 Nash Vacuum Pump.
1—H-3 Nash Vacuum Pump
3—#1 Nash Hytor vacuum pumps
1—#7 Nash Hytor vacuum pump with 75 h.p. synchronous motor.
2—Connersville, 14 x 20
2—#3 Nash Hytor
1—#4 Nash, with motor
3—L-5 Nash Vacuum Pumps

VATS
2—D. J. Murray Co. Vats, iron ends, for 42" x 120" cylinder molds, overflow and counterflow.
2—Brand new Downingtown Iron End Vats, copper lined, for 42" diameter x 112" face cylinder molds. Will cut down to your size.

VATS AND MOULDS
5—Stainless Steel Vats, with 36" Dia. x 100" Face Cylinder Moulds, anti-friction bearings, 2 Spare Cylinder Moulds, all in excellent condition.

VIBRATING SCREENS
1—Hummer electric Vibrating Screen, stainless steel
1—Selectro 2 stage, 5 ft. x 10 ft.
1—36" x 48" Vibrating Screen

WET MACHINES
1—72" Rogers Wet Machine.
1—84" Kamyr Complete Wet machine

WOOD SPLITTER
1—16" Horizontal

YANKEE DRYER
1—84" diameter x 56" face.
1—12 ft. diameter x 181½" face

Paddy Ross, Pres. **J. J. ROSS COMPANY** Ben Kurs, Treas.
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—advanced degree, experience and interests in research, operations, or technical sales. Background in specialty bleached pulps and papers from tissue and glassine to board, converting, specialist in literature, air and stream pollution, patents. Address Box 59-160 care Paper Trade Journal. M-18

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FOR SALE

IMMEDIATE DELIVERY

LOCATED—PHILADELPHIA, PA.

1—90" Yankee Fourdrinier Machine, Equipped with Suction Press, Hood Box, Veight Inlet.

1—6 Ft. Lukes Steel Yankee Dryer—150# Test.

1—5 Ft. Moore & White Yankee Dryer.

The above two dryers are fully equipped with doctors, Honeywell speed indicators and air cylinders with Foxboro controls. All rolls (felt & wire) equipped with A.F. Bearings. Direct Motor Drives. Excellent Condition.

2—Calleters.

1—#1 Claflin Refiner.

1—75 KW MG Set with Controls.

2—Embossers.

3—Beaters.

2—Screens.

Many other items, including pumps, motors, laboratory equipment, etc.

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FOR SALE

COMPLETE MILL

FOR LEASE

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50" trim, 3 cylinder Board Machine.

Complete with Stock Preparation Equipment and Modern Boiler.

Produced 15 tons of .009 Corrugating or .018 Chip Board per day.

All Machinery erected.

Machinery available separate from Real Estate.

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RUDERMAN MACHINERY EXCHANGE

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AVAILABLE

Two to three hundred tons of monthly capacity available in mid-west board mill. Address reply to Box 59-158 care Paper Trade Journal. M-11

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FOR SALE

106" B&C 5 CYLINDER BOARD MACHINE

5 CYLINDER WET END COMPLETE; 5 SETS PRIMARY PRESSES; 2 SETS MAIN PRESSES; 24-DRYERS 42" DIA. COMPLETE SECTION; 1—7 ROLL CAL. STACK; 2 BOWL REEL; SLITTER & REWINDER; PUMPS; DRIVES; MAIN MACHINE DRIVE.

ERECTED FOR INSPECTION

CAN FURNISH 106" FOURDRINIER SECTION IN PLACE OF CYLINDER WET END.

FULL SPECS AND PHOTOS ON REQUEST

ROSS PAPER MACHINERY CO.

265 PASSAIC ST.

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Wanted

IMPORTANT EUROPEAN PAPER PRODUCING CORPORATION WANTS TO BUY TWO SECOND HAND CALENDER STACKS RESPECTIVELY OF ABOUT 86" AND 120" FACE, IN PERFECT RUNNING ORDER, MINIMUM 5 ROLLS. ADDRESS BOX 59-159 CARE PAPER TRADE JOURNAL. M-18

Sales Representation

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Paper mill slime control chemicals available for territories in United States and Canada on commission basis. Large or small territories will be considered. Address Box 59-155 care Paper Trade Journal. M-11

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ARE YOU GETTING INTO COATING?

Coating specialists, having extensive mill experience in major coating processes and grades, available for research, development, mill trials and consultation. Laboratory facilities provided.

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GORHAM, MAINE M-11

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. . . is the cancer quack, the man who claims he has a "secret cure" for cancer. There is no "secret cure" for cancer. But many cancers *can* be cured if detected and treated in their early stages by a qualified physician.

See your doctor regularly. Give him the chance to give *you* the chance of a lifetime. Ask your local American Cancer Society office for a copy of its anti-quack pamphlet, *"I Have a Secret Cure for Cancer."*

American Cancer Society

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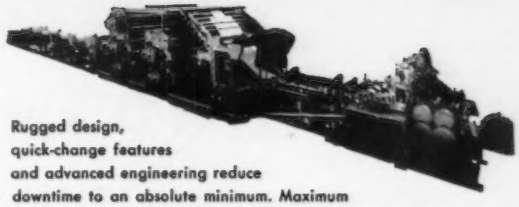

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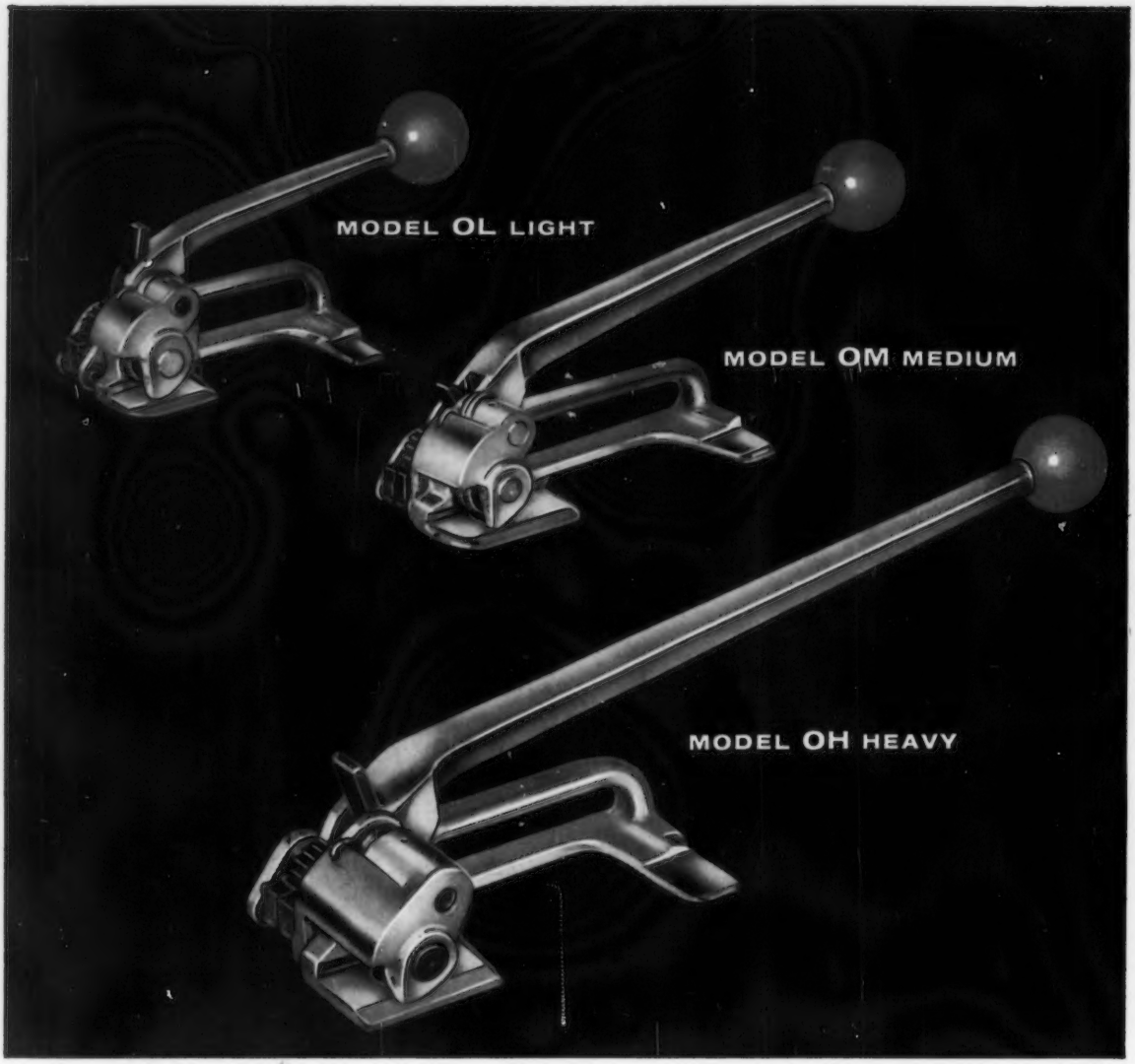

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